

ENTERPRISE AND LIFELONG LEARNING COMMITTEE

Wednesday 30 May 2001
(Morning)

Session 1

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ENTERPRISE AND LIFELONG LEARNING COMMITTEE

† 17th Meeting 2001, Session 1

CONVENER

*Alex Neil (Central Scotland) (SNP)

DEPUTY CONVENER

*Miss Annabel Goldie (West of Scotland) (Con)

COMMITTEE MEMBERS

*Bill Butler (Glasgow Anniesland) (Lab)
*Mr Duncan Hamilton (Highlands and Islands) (SNP)
*Marilyn Livingstone (Kirkcaldy) (Lab)
*Mr Kenny MacAskill (Lothians) (SNP)
Mr Kenneth Macintosh (Eastwood) (Lab)
*Des McNulty (Clydebank and Milngavie) (Lab)
*David Mundell (South of Scotland) (Con):
*Tavish Scott (Shetland) (LD)
*Elaine Thomson (Aberdeen North) (Lab)

*attended

THE FOLLOWING ALSO ATTENDED:

Mr David Davidson (North-East Scotland) (Con)

WITNESSES

Rowena Arshad (Scottish Higher Education Funding Council)
Dr Janet Brown (Scottish Enterprise)
Dr Stewart Brown (Scottish Enterprise)
Professor Vicki Bruce (Scottish Higher Education Funding Council)
Alan Sim (Scottish Enterprise)
Professor John Sizer (Scottish Higher Education Funding Council)
Sir William Stewart (Royal Society of Edinburgh)
Dr John Taylor (Office of Science and Technology)

CLERK TO THE COMMITTEE

Simon Watkins

SENIOR ASSISTANT CLERK

Judith Evans

ASSISTANT CLERK

Linda Orton

LOCATION

Committee Room 1

† 16th Meeting 2001, Session 1—held in private.

Scottish Parliament

Enterprise and Lifelong Learning Committee

Wednesday 30 May 2001

(Morning)

[THE CONVENER *opened the meeting at 09:40*]

The Convener (Alex Neil): I welcome everyone to the 17th meeting in 2001 of the Enterprise and Lifelong Learning Committee. I give a special welcome to Sir William Stewart, who is our first witness this morning.

I intimate apologies from Ken Macintosh, whose wife is in labour. Given that there are only eight days to go until the election, that seems rather appropriate. I am sure that the committee will want to join me in wishing Ken and his wife all the best over the next whatever number of hours it takes—rather him than me.

I also welcome David Davidson to the meeting this morning.

The first item on the agenda is to consider whether to take item 4—the appointment of an adviser for our inquiry into teaching and research funding—in private. Can I take it that that is agreed by the committee?

Members *indicated agreement.*

Teaching and Research Funding (Scottish Higher Education Funding Council Review)

The Convener: Item 2 on the agenda is evidence on our teaching and research funding inquiry. We start by hearing from Sir William Stewart from the Royal Society.

Welcome, Sir William, and thank you for your written evidence. I invite you to make some introductory remarks before we move to questions.

Sir William Stewart (Royal Society of Edinburgh): Thank you for inviting me, convener. The subject that the committee is considering is important. The Royal Society of Edinburgh, which is Scotland's national academy, has made a submission and I have jotted down some personal views, which you also have.

The Royal Society of Edinburgh was established in 1783 for

“the advancement of learning and useful knowledge”.

It covers what is done by four London-based United Kingdom academies: the Royal Society of London, the Royal Academy of Engineering, the British Academy and the Academy of Medical Sciences.

The Royal Society is multidisciplinary. We have about 1,200 fellows from areas such as academia and business. We have about £1.5 million of funds, with just over half coming from the Scottish Executive enterprise and lifelong learning department. We use those funds to promote lectures and discussions and to allocate enterprise fellowships. We also have a young people's programme and a programme on aging populations. We are a think-tank on issues of concern and importance to the people of Scotland—the function and role of the Scottish Higher Education Funding Council is such an issue.

Let me summarise what I was trying to say in the submission. I believe that SHEFC is doing a reasonable job, but it is being asked to do a lot. The central policy against which it has to operate is a bit opaque. An additional load is placed on the staff by the Scottish Further Education Funding Council, which is also hugely important. SHEFC is asked sometimes to fulfil a representative role at the UK table. It has to work for and with universities of various sizes, shapes and forms and with Scottish Enterprise. It also has to attempt to be strategic. To do all that is a tall order and I believe that, under the circumstances, SHEFC is doing a reasonable job.

The Convener: I will kick off by asking a couple

of questions. As you recognise in your submission, there is general agreement about the importance of both basic research and the commercialisation of research to maximise the contribution to the Scottish economy. In paragraph 10 of your submission, you mention the need for efforts to commercialise the research base to continue and to be enhanced. Have you any specific ideas on how that can be taken forward?

The current formula for the research assessment exercise gives substantial brownie points for having articles published in prestigious journals. I am told by some academics that it is more important to give papers at conferences than to get articles published. Nevertheless, the assessment exercise gives substantial recognition to articles. The RAE gives less recognition to having products patented and practically no recognition to the establishment of a spin-out company. Do you agree that there is a need to revisit the formula that is used in the RAE to strike a better balance between encouraging basic research and encouraging the commercialisation of research?

09:45

Sir William Stewart: The future of the UK depends on having a strong, basic research component. In the technologically advanced world of the 21st century, Scotland must promote excellence in research wherever it can be found, but particularly in areas of science and technology, which are hugely important to us for the future. The greatest asset in taking issues forward will be the people base—the outstanding basic researcher is one component of that.

Such basic researchers have to be internationally known. As I said in my submission, a decade ago, the large multinationals were networking globally. A decade on, the small and medium-sized enterprises on which our future depends are also networking globally. Why should companies from other countries want to come here? Because there are outstanding basic researchers, who are increasingly and rightly developing their own spin-out companies.

I mention in my submission the development of Cyclacel, a Dundee-based biotechnology company, which was set up by Sir David Lane and of which I am the chairman. That company exemplifies what can happen when the brightest scientists are well supported. Cyclacel is a success story. It has extensive networks in research, development and business and it is well supported by global as well as UK investors.

It is important to support the very best people in basic research, which is why I emphasise the importance of preferentially funding 5 and 5*

departments. However, we must ensure that the basic research is translated more quickly and more effectively. Time is of the essence. If a large pharmaceutical company wastes a day in getting a drug to the market, it loses £1 million. Each day is important. In Scotland, we must secure the funding to translate basic research into products pretty sharply, but we sometimes take too long to do that.

The enterprise and lifelong learning department and SHEFC must take due cognisance of the importance of translating science into products. For too long, the ratio of research funding to development funding—I think that this is your point, too, convener—has been too steeply in favour of research. More emphasis must be given to the very best people working in development.

The Convener: I take it from that that you are in favour of revisiting the RAE formula to restore a more equitable balance.

Sir William Stewart: That is an important issue for the nation and we ought to be doing that.

The Convener: You mentioned the time that it takes to get an idea or product from the laboratory into the marketplace. You referred to the pharmaceutical sector—in fact, we will take evidence at a future meeting from the Dundee company of which you are chairman.

Sir William Stewart: I know.

The Convener: Is the issue primarily money? Two or three weeks ago, we heard evidence from a venture capitalist who said that there is now probably enough money around to fund development and that the issue is that academics do not know how to translate the idea into a business plan. He said that, in the past, money may have been a big issue and that perhaps people still do not know about the money that is available, but that the main stumbling block today is the lack of business expertise in getting ideas and products from the lab into the marketplace. What do you think of that?

Sir William Stewart: You would expect venture capitalists to say that, because if there was sufficient money about perhaps they would not actually be necessary. My own view is that venture capitalists are not easy to deal with. They have their own agenda, which they think is best for the people of Scotland, and are concerned with how to set up companies quickly.

I am not going to say that there is enough money in the system. We have to look carefully at the money in the system and ensure that it is targeted where it can be used most effectively. SHEFC is addressing that, but we should be focusing on departments with 4, 5 and 5* ratings. I am not convinced that departments with ratings

below that should necessarily be funded. However, I believe that we should trust vice-chancellors in this country. They are the people who are at the coalface and know what their universities are about. A dedicated package of money should be given to the vice-chancellors, who would have to use it to bring forward the next generation of stars; the vice-chancellors know better than some committee sitting in Edinburgh does where those stars are. They know who the best people are, and we should ensure that they get the funds to the up-and-coming stars and their departments as quickly as possible.

The Convener: I am sure that members will have a few questions about that.

Miss Annabel Goldie (West of Scotland) (Con): Is there a danger that, if you adopt that approach, you vest a great deal of power in institutions to distribute funds, as distinct from recognising research potential within institutions?

Sir William Stewart: Universities are spread across the totality of Scotland in various areas. They serve local populations and operate as part of a national scenario. They should be international in outlook. As I said, the vice-chancellors are in a particularly good position to promote the best areas in their universities. It is often said that they have flexibility to do that when they get their grants, but if you speak to vice-chancellors you will learn that they do not have flexibility to do that. They sometimes get letters from SHEFC saying that they have not stuck to what they were given the money for. There is a lot of central direction, and I am suggesting that more flexibility could perhaps be given to the vice-chancellors at the coalface.

Miss Goldie: Your submission mentions the possible lack of flexibility if research funding is excluded for departments that are graded at 3b or below. Can you expand on that?

Sir William Stewart: I was trying to strike a balance between the importance of funding the very best and brightest people of today and the need to capture the up-and-coming stars of tomorrow. We all get old, we sometimes go off the boil, and we sometimes become administrators and spend less time at the bench. We must not fund only the brightest people of today. We have to pick out the stars and ensure that we can capture them. That is why I am saying that vice-chancellors have a role to play.

I have worked as a researcher myself. I used to have a lab with 17 postgraduate students. I knew where the bright people were; I did not need a committee to tell me where they were. It is the same with the universities. We must trust people. We must not put everything down the line by formula; we must give the opportunity to locals to

foster their local areas to national advantage.

Miss Goldie: That is extremely interesting. Can I infer from what you are saying that you think that SHEFC is not well placed to make those judgments, which would be best left to individual institutions? Is there a risk that SHEFC is overly bureaucratic in its distribution of funding?

Sir William Stewart: No, I am not saying that. SHEFC has an important role to play nationally. I used to sit on committees in London and the Scottish representation was not as high or as good as it ought to have been. SHEFC plays an important role as part of the UK situation. I am trying to find a solution for the committee to the difficult situation that is being faced.

What can we do? If we fund the grade 5s and the grade 4s, what do we do about the rest? Do we give thruppence and an apple to the grade 3s and nothing to the 2s and 1s? There are good people in almost every university in Scotland, who have the capability to do good research. They must not be excluded. A mechanism must be found to ensure that bright people, wherever they are, are promoted. I am saying that the vice-chancellors might be given a role to help to do that.

As I have said before, I think that SHEFC does a reasonable job, but it has too much on its plate. Perhaps we should seek to ensure that it can do what it does best. There should be a Scottish strategy for research and development. That should be decided centrally, after consulting widely. An operational arm must then proceed with the implementation of that strategy. SHEFC might be the operational arm, but it cannot do it all.

Mr Duncan Hamilton (Highlands and Islands) (SNP): I want to pick up on the point about picking out stars. You seem to have been saying two different things in the last couple of answers. If I understood you correctly, you want to give the predominant role to vice-chancellors, because they know where the stars are in their universities. Do you accept that to go down that route would be to defeat one of the central purposes of any allocation of resources—that it must be transparent, be seen to be fair and provide incentives for the future so that people know that decisions will be equitable, as opposed to there being a sense of backstairs dealing?

You said that it would be appropriate to have a differential in funding between grades 5 and 5*, but not of the same magnitude as between the other grades. I would have thought that the jump between those two demarcations would be as substantial as, if not greater than, that between the other demarcations. Why are you suggesting that there should be some difference, but not that much? If there is to be additional funding for the 5*

departments, at the expense of which other gradings would that happen?

Sir William Stewart: I am saying not that vice-chancellors should take over the role of SHEFC, but that when it comes to the research needs of grade 1 to 3 departments, the vice-chancellors can play an important role. I am happy to leave SHEFC to do the rest. That answers your first point.

The second point, which you will have read in the Royal Society of Edinburgh submission, is that there should be a significant funding difference between grade 5s and others. The point has been made that grade 5s are doing reasonably well compared with other departments, but that comparison has been made on a UK basis. The question that has to be asked is, are grade 5 departments in the UK as well funded as the best international labs? Too often, they are not. We should get away from this parochial business of saying, "Compared with other university departments, we are doing quite well." In the global world of the 21st century, we have to ask whether our funding for grade 5s is as good as that for the best labs elsewhere in the world. That is why I support a substantial differential.

10:00

Mr Hamilton: Can you see why that might lead to problems? I understand the argument for flexibility with the lower grades and why that is important for secure funding. I also understand your argument for more funding at the top end. However, we cannot have both.

Sir William Stewart: We can. SHEFC is considering whether there should be any funding for grade 3 departments. If there is to be funding for grade 3 departments—even for some grade 4 departments—there must be a pocket of money for it. That pocket of money might be better used if it was given to vice-chancellors and vice-chancellors had flexibility.

Mr David Davidson (North-East Scotland) (Con): Sir William, you commented on the links between the university sector, commercialisation and small and medium-sized enterprises that trade internationally. You also talked about international comparisons in funding. However, in the world of enterprise and business, we live in a global community. Members of the international science community challenge one another—they have a real go across the world. This is not just about being parochial in the UK; we know that, if an international company wants to invest in what we are doing, we have to be there with the tops. How much do we accept the need to view ourselves as part of the world economy and to see higher education as part of that?

How are you going to deal with the universities and new institutions, some of which are based on vocational subjects, such as tourism or food science? Those subjects are two major parts of our economy—we export a lot of knowledge in those areas. If those institutions are to be cut off, how will they develop? How do they work up to being grade 4 and grade 5 departments? If you cut them off early, they will never develop or attract good researchers—who are often also good teachers—and they will lose confidence. Would those departments become nothing more than higher-grade further education colleges? That is a risk.

Sir William Stewart: You make an important point. I am not for cutting them off. That is why I say that, for the 14 universities, a packet of money should be available to the vice-chancellors to promote research when the right people are there. Some of the new universities play a hugely important role at a local level in promoting and developing business. Scottish Enterprise, for example, might have a role in promoting some of the small businesses.

We should not accept that the enterprise and lifelong learning department is the only source of public funds. One of my concerns across the totality of the Scottish funding system is that other departments of the Scottish Executive—for example, the health department—seem to be excluded from our discussion on enterprise and lifelong learning. Life science is hugely important. Should not the health department input into that significantly? Important scientific issues are relevant to the rural affairs department. Should not that department have an input? We should be looking at a broader strategy from the centre on how the totality of the science and technology base in Scotland is taken forward.

Mr Davidson: Are you suggesting that Government departments should have within their budgets an allocation to sponsor and support research and development in their area of expertise?

Sir William Stewart: I am not suggesting how it should be done. I am just saying that there is a vacuum that needs some attention in a corporate, strategic way.

Mr Davidson: You talked about money going to the vice-chancellors, who know what is going on in their institutions—I do not doubt that—but you also talked about peer-group evaluation. I presume that SHEFC is accountable to somebody for the outcome of whatever it invests in. How do we deal with that? Do we use the funding as a form of venture-capital funding—in other words, do we take risks? Is SHEFC entitled to take risks?

Sir William Stewart: SHEFC has an important

role to play in general funding by formula. When I say that a packet of money should be given to vice-chancellors, I am talking about a modest packet. SHEFC has to take forward the strategic position for the Scottish universities as part of the UK scenario, which must be subject to a UK-based RAE.

Mr Davidson: What about peer evaluation?

Sir William Stewart: There is no substitute for peer evaluation.

Des McNulty (Clydebank and Milngavie) (Lab): My perception, as someone who worked in one of the new universities, is that people would be strongly opposed to what they would see as a move back to a development-funding model, which is what you are suggesting when you say that the vice-chancellors should decide where the money goes.

An issue that arises—David Davidson mentioned it—is the emergence of new research disciplines. For example, in the most recent research assessment exercise, no department of nursing got above grade 3. There are a number of disciplines—professions allied to medicine and tourism, for example—that are important and useful for the development of Scotland but have no 5 and 5* departments. Is there a mismatch between the traditional university system, which has a kind of vague excellence agenda, and the usefulness agenda, which might be more discriminatory? How would you develop that? I expected the Royal Society of Edinburgh to say more about that, given its history and traditions. Is it fair to subscribe to notions of excellence that apparently avoid flexibility in the development agenda for new disciplines, specialisms and areas of utility that would benefit Scotland?

Sir William Stewart: As I said in my submission, SHEFC has an important role to play in developing new areas. I mentioned medical students. Why is less money available per capita for medical students in Scotland than in England? SHEFC is addressing that. Areas such as nursing are hugely important. That is the sort of issue that SHEFC has a role in developing. Many of the new universities play an important role in that.

The point that you are making is that the new universities would not like what I said. However, I was thinking of the new universities when we were talking about some grade 1, 2 and 3 departments. The new universities are on their way up and some of them have very able vice-chancellors. I would not exclude departments by saying that they will not get anything if they have received only a grade 1 to 3. I am in favour of giving the vice-chancellors a package with which to improve their universities in a way that the current SHEFC proposals might not allow.

Des McNulty: Another approach would be to say that we are not happy with the SHEFC proposals to exclude grade 3 departments from funding. You seem to be proposing a two-tier system that would protect the vast majority of departments in the older universities and exclude from research funding the vast majority of departments in the new universities. You are suggesting that there should be a vice-chancellors fund for people who are excluded, as a kind of compensatory device. I do not see the logic behind that.

Sir William Stewart: It is not my logic; it is the logic of SHEFC. SHEFC is suggesting that some graded departments should receive no funding for research. I am suggesting that there should be a mechanism to allow the promotion locally of the best individuals in some of the lower graded departments and that that responsibility should lie with the vice-chancellors.

Des McNulty: You mentioned the funding of medical students. SHEFC proposes to address the funding of medical education. One of the implications of that is that money will be taken away from research and development in other health-related areas. Is that logical and is it what Scotland requires in research and manpower development? Should we be dealing with doctors at the expense of nurses, physiotherapists, podiatrists, medical laboratory technicians and all the other professionals who make a contribution to health provision?

Sir William Stewart: The answer is simple. You can put more money into the system or you can leave the funding as it is and not put more money into the system. Do you want to do that?

Des McNulty: No. Academics will always agree on two propositions: there should be more research and there should be more research funding. In the real world, we must make choices about where money is going and we must debate those choices rather than hide behind nebulous notions. The choice is either to invest in medical education or to invest in research by, and the education of, non-medical health staff. SHEFC appears to have chosen to invest more in medical education because of a perceived deficiency in comparison to medical education in England and Wales. One of the implications of that choice is that research funding may be removed from other groups of people who work in Scottish universities. That is a real choice and you cannot get around it by saying that somehow there should be more money to bail us out. Do you agree with SHEFC's choice?

Sir William Stewart: I do. Funding should be targeted to key priority areas. The slight danger of targeting in that way is that circumstances may change. However, nursing and medical education

are not going to go away. SHEFC should ensure that a local requirement is delivered and it should contribute towards that. I support the allocation of more funding to key priority areas such as medical education. Other areas, which I shall not name, receive research funding that one must question as a good use of resources.

Des McNulty: Areas such as medical education can get funding from other bodies, such as the Medical Research Council and pharmaceutical companies. People from disciplines such as nursing and physiotherapy find it difficult to get money from other resources, so to withdraw the funding may be to remove the only research money that they can realistically get access to.

10:15

Sir William Stewart: That is right. However, funding does not have to be taken away from the physiotherapists. Are the plethora of existing university courses all of equal priority to the future of this nation? I doubt it. Some areas are in greater need of funding and there should be a shift to allocate more to those areas that have been determined as strategic to addressing the needs of the nation.

Mr Kenny MacAskill (Lothians) (SNP): How can we balance the funding of excellent research—irrespective of its subject and the way in which it interacts with the future economy of Scotland—and the needs and directions of the present economy, given the fact that we have a finite budget?

Sir William Stewart: Substantial importance should generally be accorded to the economic implications of what is being funded. That need not mean that some areas should be cut out, as research assessment exercises will continue on a five-year basis—there will be the opportunity to reassess the situation every five years. It would seem nuts to me if key areas in Scotland's health service, which need attention and must be considered as priority issues, did not get preferential funding in a time of need.

Mr MacAskill: Would it be fair to say that this is not a question of not funding research that is perceived as peripheral in a department that is graded 4 or 5, but that it is simply a matter of redistributing the resources and weighting the funding according to whether the research is core or non-core?

Sir William Stewart: As I said, an economic factor should be plugged into the funding allocations.

Mr MacAskill: You have been talking about making funding available for vice-chancellors to cover the new universities and other areas in

which skills and talents are coming through that have not yet managed to reach grade 4 or 5. Would an alternative be to enhance the transitional budgets that are available to SHEFC? Rather than disburse funds simply at the behest of the vice-chancellors, those funds could be disbursed by SHEFC subject to nominations from vice-chancellors. That would mean that there was some overall scrutiny of the allocation.

Sir William Stewart: That is a possibility. It might be more bureaucratic, but it is a distinct possibility.

Marilyn Livingstone (Kirkcaldy) (Lab): You have talked about the rapidity of technological change, which often takes unforeseen directions, and the rapid obsolescence of existing technologies. Do you think that the five-year basis of the RAE takes account of that? Does it allow flexibility and does it reflect the needs of the ever-changing market?

Sir William Stewart: Five years is about right.

Marilyn Livingstone: Do you think that the balance between RAE funding and development-type funding is right?

Sir William Stewart: In time or in ratio?

Marilyn Livingstone: In ratio.

Sir William Stewart: People used to say, "Basic research is what I do when I do not know what I am doing." That is perhaps not quite right, but there is sometimes an element of that. We have to ask whether everybody should, as a right, receive taxpayers' money to do research. My view is that, in some areas, it would be better to put the money into development rather than research.

The Convener: That covers all our questions, Sir William. Thank you for your written and oral evidence. We appreciate your coming to the committee this morning.

Our next witness is Dr John Taylor, director general of research councils at the Office of Science and Technology.

Before we go on, I would like to deal with a couple of housekeeping points. First, people will have noticed that Tavish Scott has had to leave us for another engagement; he gives his apologies. Secondly, Miss Goldie has an interest to declare.

Miss Goldie: I should have declared my membership of the court of the University of Strathclyde.

The Convener: I take it that no other members have interests to declare.

Thank you for coming this morning to give evidence to the committee, Dr Taylor. I believe that you have come from Bristol, so we appreciate

it. We have copies of your written submission. I ask you to supplement that with an oral introduction, before we ask you some questions.

Dr John Taylor (Office of Science and Technology): Thank you for the opportunity to be here. I am sorry for arriving a little late, but the plane broke down.

I would like to mention a few key points. From my perspective, excellence in research is the No 1 issue. If our aim is to fund leading-edge research, it really must be at the leading edge of excellence if it is going to make a difference. Collaboration with the world's best researchers is also key. In the UK, we do about 5 per cent of the world's research; the rest is done elsewhere. Ensuring links with the world's best is very important.

Research is becoming more expensive. I do not yet know how to characterise that accurately, but the investment that is needed in a researcher to achieve the same productivity seems to be going up. As well as being more expensive, research is becoming more equipment and facility intensive. Those three things together mean that focus and critical mass are also important for research groups.

We look for three outcomes when we put money from the Office of Science and Technology into research in the UK: new knowledge and new know-how; trained researchers; and an impact on the economy and on society, which some people call knowledge transfer. Understanding those three dimensions of outcome is important to the way we progress.

On knowledge transfer, it is important not to demand that, where excellent research is done, it must be immediately exploited. It is hard to get people to do excellent research and having it exploited somewhere is a great achievement. The notion that medium and long-term research must be immediately exploitable goes almost a step too far. We must ask how we can get involved in exploitation and build value back in, so that a cluster can develop around the place that is doing the research.

Collaboration across disciplines, organisations and institutions and research councils is important. The new cross-council programmes that we implemented for spending review 2000 are important new ways of organising, funding and managing collaboration, so that the councils and their disciplines get in the way less. An important example of that is e-science, which is about the infrastructure for global collaboration among the world's best. It has been crucial to genomics, physics, climatology and a whole range of sciences. Being a well-found laboratory in e-science and grid terms will be important for leading-edge research groups. It will change the

dynamics of collaboration among groups. One no longer has to own a telescope on top of a mountain somewhere to do world-class astronomy, for example.

Over the next year or so, as we face issues such as the 2002 spending review, for which preparation is already starting, and the quinquennial review of the research councils, we will work on collaboration and multidisciplinary even more intensively.

The Convener: You started by emphasising the importance of knowledge for knowledge's sake and saying that we should not think about immediate exploitation of knowledge gained through research. Most of the people I know would accept the importance of basic research and the need for a flexible approach to that, but it is no secret that over the past 50 to 100 years, part of the British disease has been our ability to be professional and successful in the lab, but our inability, generally speaking, to transfer that into commercial success in the marketplace. Is not there a need to redress the balance? Is not it the case that, for too long, the balance has been more in favour of knowledge for knowledge's sake and not enough in favour of commercialisation? If we are going to get our act together as a competitive nation, we will have to put much greater emphasis on commercialisation.

Do you also agree that the formula used for the research assessment exercise still gives too much emphasis to awarding brownie points for prestige papers and journals and not enough for patenting goods or setting up spin-off companies? Do not we need to redress that balance, too?

Dr Taylor: That is a big set of questions. I shall go through them step by step, if I may. I said that there were three outcomes and that the first was knowledge and know-how. One of the new cross-council programmes we have just set up is the basic technology research programme. We have tried to improve the esteem of fundamental research in technology without taking money away from fundamental research in science. In fundamental science research, the outcome that is sought is knowledge for its own sake. In fundamental technology research, the outcome that is sought is a basic new capability; people will probably have no idea yet what the ramifications of its use might be. On that axis, we are trying to say that fundamental research on technologies for new capabilities should have parity of esteem with fundamental research on science.

On knowledge transfer and the impact on the economy, in the three-axis model, we should follow the lines that we started to talk about in last summer's white paper, "Excellence and Opportunity". We should aim for more diversity of excellence among institutions.

Rather than trying to measure economic impact as part of one calculation—diluting the research assessment exercise by trying to include many factors—I would prefer to have better metrics for knowledge and know-how, training and economic impact. A major exercise by the Office of Science and Technology and the Higher Education Funding Council for England is trying to achieve better metrics for the third leg. We want to identify with reasonable precision the excellent groups that do things quite differently from other groups.

Whatever the RAE's shortcomings, it is useful to be able to identify groups that do fundamental research well. It is quite frightening that we can easily identify the good groups in research, but we are not anywhere near as good at identifying the groups that do knowledge transfer excellently as opposed to poorly. We have to start to reinforce the groups that do that well and to develop their capabilities.

10:30

The Convener: Is not there a need for greater incentives for researchers who take their developments to the point of patenting them or forming a spin-off company?

Dr Taylor: That is really what I mean by metrics on the third leg. Once we can identify the excellent researchers, we can provide them with incentives and rewards. At the moment, we are not very good at distinguishing the excellent from the poor, but things are a lot better than they were a few years ago—especially on start-ups, spin-outs and so on.

The model that we often use is one of push and pull: there is push from the science base, where we ask what we can do to help people to push their research results into commercialisation; and there is industry pull from, among others, the Department of Trade and Industry, where money is spent primarily to try to improve industry's relationship with the science base. The key thing we could do better is to understand the high value-added, high-tech and high growth potential of some research.

By its nature, research is medium and long term. Understanding and being ready for areas in which high value-added, high-tech and high growth start-ups and contributions can start to develop is really important. That is what science enterprise challenge and university challenge are all about.

The Convener: I want to ask about the studies of the relationship between research and development and of ways of incentivising the development side. What has been the input of the Scottish Higher Education Funding Council? What is SHEFC's role vis-à-vis the research councils and the OST? Is there a close working relationship?

Dr Taylor: The relationship is generally very good. Traditionally, it has focused on the research axis and, recently, quite heavily on the research training axis. In those areas, we have had a lot of co-operation and cross-representation. Our staffs work together well. All of us are still finding our way on the third leg. The recent initiative of the higher education investment fund—HEIF, pronounced heef or hife—is an England-only arrangement; and some of the HEROBC—the higher education reach out to business and community fund—that preceded it was primarily a HEFCE arrangement. Scotland, Wales and Northern Ireland have held on to their right to behave differently and to do things that they feel are more appropriate, but what they have done has been more or less in the same vein.

Des McNulty: One of the effects of the research assessment exercise has been to drive up the proportion of researchers in the more active research departments who are producing high-quality papers. That means that, by international comparators, the British and, indeed, the Scottish research bases are apparently thriving. On the other hand, we seem to be saying that clear inadequacies exist in terms of spin-out, development and so on. Is that because the drivers in the system are pushing researchers in one particular direction and not in others that might be equally important? Can we do anything about that set of drivers?

Dr Taylor: The levels of start-up and spin-out now are very different from the levels three or four years ago, as are, in a number of cases, major embedded industrial research partnerships in universities. However, we still have poor metrics, so a lot of the evidence is anecdotal, whereas the RAE tends to give rather sharply focused metrics. The need to have better metrics is urgent, so that we know about economic and social impacts. Programmes such as science enterprise challenge and university challenge aim to provide additional support for things that are not research—Faraday partnerships, for example. The programmes aim to give parity of esteem to activities whose prime aim is not to publish papers in *Nature* but is to have some kind of economic impact. There is a considerable way to go on that.

Des McNulty: Are we spending time measuring things that are not all that important when we should be measuring other things that may be more important?

Dr Taylor: I would not want to get into an either/or debate. It is important that we pay attention to all three axes. We need better metrics on the economic impact axis than we can currently get from databases.

Des McNulty: People in universities argue that too much of their time is taken up with being

measured, regulated and assessed and with filling in application forms for research grants. A perception exists in the sector that people are measured quite a lot already, thank you very much. More measurement of another dimension will not be accomplished easily without a process of consolidation, reduction or simplification of measurement of other dimensions.

Dr Taylor: Absolutely. We can consider the difference between the science research investment fund and the joint infrastructure fund. I had the pleasure of chairing the JIF executive committee and I was very much involved in huge competition. In SRIF, we have moved away from a competitive mode to an allocation mode: we say to institutions, "You know how much money you are going to get, so let us now have a light-touch dialogue about your strategy for spending it. What kind of science research infrastructure are you going to put in place?" In areas such as that, we should definitely adapt.

We believe that the third dimension—economic impact—is important. Where I come from, people say that if something cannot be measured, it certainly cannot be managed. Unless there is a better feel from the science base for the economic impact, it is hard to say how policies should be changed to give support.

Des McNulty: I do not deny that that is difficult. This is not only about economic impact; there is a broader social impact across the range of dimensions that contribute to society. Economics is important, but so might be other considerations. What strikes me is that, if we want to achieve a process of assessment of worth or outcome, there must be, in the broader dimension, drivers in the sector that show people that the measurements have some significance. We must also consider ways of refining the measurements of more conventional terms. Do we need to spend quite so much time assessing precisely what is excellence, by discipline, and—

The Convener: Sorry, Des. We are here to hear Dr Taylor's point of view. Could you stick to questions?

Des McNulty: I am probing whether we can simplify the processes and perhaps tailor our efforts in other directions so that we can measure what we are looking for. Dr Taylor agrees that that is important.

Dr Taylor: I was part of the discussion about the RAE. It was interesting to hear a large number of academics discussing what simplifications or ways forward could be found. As you will have seen from the outcome of those discussions, little change was proposed, although the existence of a large number of monodiscipline categories has positive and negative effects.

One could consider the sort of burdens that are involved in teaching quality assessment, but that is outside my domain. The thinking behind the higher education reach out to business and community fund and HEIF is to move to an excellence-driven formula allocation, rather than a big competition. People say that once we are clearer about which groups are really good from the point of view of their economic and social impact, such funds should be sent to them in a way that does not depend on the RAE—that will lead to a degree of diversity of excellence. However, some kind of light-touch measure has to be put in—perhaps the groups' four best impact stories, rather like their four best papers. It does not have to be an enormously exhaustive, detailed and spuriously precise metric, but we need something a little more systematic, so that people can say, "We know where the excellent groups are and, by implication, where the less excellent groups are."

Miss Goldie: If our aspiration is that research in the United Kingdom should match the best elsewhere in the world, who has knowledge of what is happening elsewhere in the world? Does the council have that knowledge or does it expect the group of academic peers who sit and consider one another's respective navels and merits to have that knowledge?

Dr Taylor: Again, the answer is complicated. Sometimes it is a question of whom a particular group is linked to or working with. Sometimes it is a question of ensuring that the peer review community that gives out the money has an adequate international dimension and is not just entirely local. Sometimes it is a question of bringing in independent international peer review groups to consider a particular set of programmes or a particular portfolio of research. We are doing that at the moment in the Engineering and Physical Sciences Research Council in areas such as computer science, materials and engineering. We have said that it is time that we ensured that those areas are properly calibrated internationally, not just by their own communities.

Miss Goldie: If the council is considering requests for research help within the United Kingdom, who has knowledge of what is happening elsewhere in the world? For example, an institution may say that it has a high-quality research base and wants money to go on doing what it is doing, but it may well be that that institution should be working in partnership with another institution, for example in the States. Is it expected that the institutions will volunteer that knowledge—or have that knowledge—or is it expected that the funding or research council will be in the position to tell the institution that there is something interesting that it should be looking into?

Dr Taylor: You are touching on the tension, in the way that the research councils operate, between what might be called a top-down, managed approach and a bottom-up, responsive approach. Nobody would disagree that, if we really want fundamental research to be going on—and going well—it should be the research that the best in the community think should be done. It is difficult for top-level managers to propose the specific areas of blue sky research that people ought to do. It is a question of how we marshal, stimulate and incentivise the best researchers to produce the best proposals. My job is to consider the whole portfolio of science and technology that we might fund with the limited money we have available and to divide that money between the various areas. Out of that total, mathematics might receive this much and chemistry that much. That is a gross simplification, because we have different research councils and the fields are complex, but having said, “The pot is about this big,” we need to ask the communities, “What is the best way you could spend that money?” That is where the tension with international excellence is important.

The Medical Research Council, for example, actively takes a top-down approach. It will say, “Here is an area of science that is important to us, but our judgment is that the UK research community is too weak or too small.” It makes top-down interventions, for example by finding an excellent researcher from another country, bringing him here and building a group around him deliberately to strengthen a field that it feels is too weak but which is nevertheless important. It does not try to tell that researcher in detail what research he or she should do. The tension is between the top-down approach of, “Do you know where the gaps and the weaknesses are?” and the bottom-up approach of, “Are you getting the best people and best projects to work in the areas that you have decided you will fund?”

10:45

Miss Goldie: That is helpful. Does that also mean that the councils have some idea whether there is duplication of provision?

Dr Taylor: Sometimes duplication is a good thing and sometimes it is a bad thing. That has to be judged case by case. Sometimes there may be several different approaches to a major area and we do not know which one will make it. Sometimes people may be doing rather second-rate, mundane investigations of the same field without much idea at all.

The same issue comes up in international discussions. If we believe that a particular area is important, should we compete to be one of the best or should we just collaborate with the other

best groups in a single effort? The human genome project is an excellent example. Global collaboration among the world's best was essential in getting the problem solved. It was interesting to observe the way in which the problem was parcelled out, shared and worked on competitively by the best labs around the world.

The Convener: Three committee members still wish to ask Dr Taylor questions. I remind everybody that we must keep our eye on the clock and that, when we have witnesses, the purpose is not necessarily for members to give their views but to seek the views of the person giving the evidence.

Mr Hamilton: I will bear that in mind, convener.

My questions relate to the third strand Dr Taylor talked about: knowledge transfer. I am curious about who has—or should have—responsibility for what in the move from research to markets. That is the phase I want to concentrate on.

Dr Taylor said that there are some good, mainly piecemeal examples of projects that have worked in terms of what he calls the need for better metrics for knowledge transfer. Who should be responsible for ensuring that that happens on a much more concerted basis? The committee needs to be clear on that, so that it can make recommendations to ensure that the approach is national as opposed to piecemeal. The second stage of the process is the economic assessment of factors such as how long it will take for the research to come on stream, how long it should be given and what the economic potential of the project will be. Disregarding where we are currently, who do you think is best placed to make that assessment? Who should have responsibility for that part of the process?

Finally, are you happy that responsibility for pushing the research that comes out of the system to the market is adequately discharged? Can more be done at the interface with the enterprise structure for example, at the far end of the scale? Do you accept the three different stages? Who should be responsible at each stage?

Dr Taylor: First, on the question of metrics, I would like there to be some joint work between the Office of Science and Technology, the research council community, and the funding councils around the UK. We all spend money in that third-leg area, and we all want high performance in it. It is important to work together on that, and I hope that the study that we are doing with HEFCE over the summer will produce some results on which we could get wider agreement. We want the result to be not too heavy, but more systematic and useful for our understanding of how well people are doing.

On the movement of ideas from research,

members will recall that I talked about a science-based push. I also mentioned industry pull, which is very important. I have spent many years leading and managing research in high-tech industry. I have noticed that industry and some of the research councils can identify a problem domain, application domain or user need and can turn people loose to try to find radically new solutions. We can do that in industry, in looking for major new businesses and so on. Wireless technology is a good example of a whole new domain that has been enabled by people trying to put many different technologies together.

The Medical Research Council's attempt to find a cure for cancer is an example from the research council domain, in which there is a mission for which it does not matter what science or technology is used to produce a solution to the problem. The average academic has tended to be rather mono-disciplinary, and the notion that he or she has an idea or breakthrough—which can then move smoothly to the market with the push that is required—is fatally flawed most of the time. We usually find that, if there is a breakthrough in a particular area of science or technology, it is necessary to find a lot of other things to go with it, and to test it against real applications and real human needs. Usually, people will get that wrong—hugely wrong—about three or four times.

People need to worry about their very early thinking in relation to the route to market; they need to understand that they themselves do not have a solution. They need to realise that other people will be able to bring some of the pieces together and that, between them, they will produce something that could make a huge difference. When testing is done on potential markets, we usually find that the response is along the lines of, "I'm sorry. You've got that quite wrong. You didn't understand what our real need is." Those doing the testing might then be told that if they did this, that and the other, they would have something terrific.

The industry-pull side and the science-push side need to think about how to get connected through an early route to market to potential users—who can supply feedback on whether an idea is good or not—and through the technology partners who are needed to put together a solution from the key piece that already exists. That technology integration is not captured by the research assessment exercise, nor is it rewarded by our present metrics. Although it is crucial for people to go and find other pieces of technology and other people to work with, that is not often recognised as important. It is another way of talking about multidisciplinary.

On the question of the correct kind of metrics and who is responsible for worrying about that,

people must be really clear—when it comes to the third leg—about what they are trying to achieve. Are they trying to achieve jobs, the addition of high value, high growth or high profitability? Usually, it is not possible to achieve all those; at least not to start with. People must be rather brutal about the kind of metrics that they go for.

An exercise that I have found useful, but which has been missing in many areas, is considering the question of what success would look like in the British or Scottish economy in a given field in five years' time. If we suppose that there is a high-tech, high-value added, high-growth area—other than according to job metrics—and if everything went well in that area and we kept up with the French or the Germans or whomever, how would we know whether we were doing as well as we possibly, or reasonably, could? In taking a five-year look against a background of reasonable data and expertise—not central planning or central targeting, but scenario analysis—we would ask; "If biotechnology is really important to the economy, what do we expect to see that is different five years hence on the industry side?" We would need to know what was holding us back. We would need to know whether it was the absence of a big company, or of the ability to construct a supply chain. We would need to know whether it was the lack of technician-level or other skills.

Mr Hamilton: That is all exceptionally useful. I understand your suggestion that RAE is not the way to introduce an economic assessment portion, and I understand what you have been saying about the need for that. However—although I might have missed this—I am still slightly unclear about what you propose as a mechanism for resolving that problem. We know the problem. We know that we do not want to use the RAE, but what do we want to use instead?

Dr Taylor: The metrics study to which I referred would be the first step. It asks whether there is a reasonable and light-touch way of identifying excellent groups that do things well, as opposed to groups that say that they are trying, but which do not have much effect. In science enterprise centres, through the university challenge and in HEIF—the successor to HEROBC—we should send excellent groups additional money and we should have a dialogue with them about the most effective way in which they could spend that money. That might involve sustaining groups with a technology base so that they can use that in working with growing industries. That would mean that they were relieved of the burden of having an RAE score.

The next step, having established how to send additional funds to those excellent groups, should be to ask them what their real need is, so that they can do better. However, we need to ask the

excellent groups, but not everybody.

The Convener: Before I call David Davidson, I remind members that we are now running seriously behind time. However, as Dr Taylor has come up from Bristol, I am anxious to give him a full hearing and to hear everything that he has to say. We will probably not get the chance to do so again for a while.

Mr Davidson: Good morning, Dr Taylor. Let us cut to the chase in relation to the funding inquiry. Your organisation pursues excellence—that is a worthy objective. One of our concerns in Scotland is how to encourage departments that are doing moderately well, and how to develop them so that they become excellent. How should the funding councils consider that question?

Dr Taylor: That is a difficult issue, and there is considerable tension between central planning and institutional independence and autonomy. In the white paper that was published last summer, we said that we wanted more autonomy among institutions and less micro-management, at least from Whitehall. The developments around the scientific research investment fund will be important if they work out. By that I mean that, as an institution decides how it proposes to spend the infrastructure money for research that it has been allocated, it would be beneficial for that institution to take part in a dialogue about its strategic research intent. If that institution is investing in the science infrastructure, that will not be just for two or three years; it is a much longer-term thing.

We waived the usual 25 per cent institutional or third-party contribution for institutions that have serious collaborative projects through the SRIF partly because we wanted to encourage institutions to collaborate in bigger projects than they could undertake individually. Such a process of dialogue with an institution or group of institutions about where they see themselves going is often quite difficult, because many institutions simply do not know that. Working with institutions on their strategic plans has been very helpful to both sides over the past few years.

11:00

Mr Davidson: In Scotland, a number of universities are already collaborating formally in certain sectors. One of the issues that I have been discussing with those universities is how they manage intellectual property rights—IPR—which seems to be the goal of some university departments. The commercialisation of such intellectual property seems to be another operation altogether, which requires new expertise. How should the funding council handle the commercialisation of IPR to allow the universities to concentrate on developing IPR as

an end-product in itself and as a valuable means for the institution to suck in more research funding? Should the funding council have a new arm that seeks out areas of exploitation?

Dr Taylor: First, one of the most effective ways of spending funds in that area—if there are any to deploy—is to help towards paying for the right kind of patent attorneys and patent lawyers to deal selectively with IPR. People learn the hard way that they cannot possibly afford to patent everything that they could patent, and that—secondly—even if they did, they could not possibly afford to defend those patents. As a result, one of the key issues is how to decide which of the one in 10 or one in 20 projects will be patented.

I get a lot of complaints about that second point. When universities decide to patent something, they cause a lot of damage because they do not quite understand that for a patent to be really valuable, 39 other patents have to be signed up before they have something that is commercially valuable. All the behind-the-scenes work of putting together the patent portfolio that is necessary to exploit a particular patent is crucial and requires very skilled people who know their business. It is not the usual university tech-transfer operation.

Thirdly, it is important to remember that the amount of licensing income from patents in the UK and US university systems is tiny; the real value comes from the equity that flows from start-ups and companies that are started on the basis of a secure portfolio. I would ask the funding council to focus on how to support the following three stages of getting value from patents: being selective, finding real expertise to put together a portfolio, and going for equity stakes in start-ups instead of relying on the licensing income.

Mr Davidson: Finally, on training researchers, although people can be trained while they are working on a research project, can the funding council play a distinct role in ensuring that researchers are trained in the process?

Dr Taylor: The first clear message that we have received from many communities, including SHEFC, is that research councils have an on-going duty to the rest of the community to set the gold standard as far as the requirements for proper research training for one of their funded positions is concerned. We fund only about 30 per cent of UK PhDs, but everyone thinks that, on the whole, the standards attached to those positions are pretty good.

The wider issue is how between us we might influence academics and academic managers in universities to do a better job of managing the careers of research people including PhD students, postdoctoral researchers and others. There has been much dialogue between research

and funding councils about how we should encourage vice-chancellors and their academic staff to pay more attention to that dimension of the wholesale well-founded training of researchers. Although we measure the quantity pretty well, we do not do the same for the quality. There are many aspects to the issue and one hears much anecdotal evidence. For example, people have been saying that the PhDs that are hired in the UK in certain areas are not as good as the PhDs in Germany and elsewhere overseas. As a result, the question of what it takes to deliver first-class research training in a university is something that we and the funding councils are paying much attention to. It is mentioned in HEFCE's review of research funding as an issue that we should try and act on before the next RAE. However, it is not yet very clear what incentives—or sticks—will be introduced to make that happen. If universities want to be more autonomous, but still want us to provide funding for them, one of the outcomes that we will require is decent training, and we will pay more attention to whether that is being delivered.

Mr MacAskill: Given the points that you and Sir William Stewart raised about the importance of research to the economy; that the economies of Scotland and England do not necessarily move in the same direction or at the same pace; and that we are now in the post-devolution settlement period, how can we address any democratic deficit in the input of the Scottish Parliament and Scottish Government to funding from your organisation and other research councils? Such funding dwarfs any Scottish Executive research funding. What mechanisms are currently available, and what changes might be necessary?

Dr Taylor: The research councils' current consultation and representation processes are pretty scrupulous about maintaining a good balance of advice and input from various different constituencies. As far as the governance of the research councils is concerned, we are doing pretty well and we have a good balance of disciplines, geographies, institutions and users.

The mechanisms between the Scottish Parliament and Westminster are many and complicated, and I am sure that the committee would not want me to go into them right now. However, I will say that the concordats provide good opportunities for articulating new concerns or areas to which we should pay attention or where joint working is required. The coming quinquennial review of the research councils will give us another opportunity to solicit input from anybody who has a view on some of those issues. It is clear that the current issue is how we adapt ourselves to the world of devolution; the next issue we might possibly have to address is how we adapt ourselves to the world of English regions. A set of issues is unfolding in that respect. However, the

underlying principle must be excellence, wherever that is found.

The Convener: Thank you very much. We appreciate the time you have taken to attend the meeting this morning, and all committee members found your evidence useful.

Dr Taylor: Thank you for the opportunity. I look forward to the outcome of the committee's deliberations.

The Convener: We will hear from the Scottish Enterprise witnesses next. I should warn SHEFC witnesses who are waiting that we will have a short break after the next evidence-taking session. Some of us have been in here since 9 o'clock this morning.

I welcome the representatives from Scottish Enterprise. They are: Alan Sim, the director of operations; Dr Janet Brown, the director of competitive business; and Dr Stewart Brown, who is on the competitive business team. Thank you for your written evidence. I apologise for your having to wait before we could ask you to the table. Would you like to make some introductory remarks?

Dr Janet Brown (Scottish Enterprise): The Scottish Enterprise network welcomes the opportunity to contribute to the review in regard to the research funding that is provided by SHEFC to the higher education institutions. The responses and comments that are included in our submission are predicated on the fact that the key driver for Scottish Enterprise is to ensure the maximum economic benefit for Scotland. However, we recognise that in the context of the overall information and the economic system, individual players have different roles and that SHEFC has a broader remit.

We are encouraged by the openness of the developing dialogue between SHEFC and Scottish Enterprise as we explore areas of common interest and focus. The openness is most notably evident in the representation of Scottish Enterprise on the SHEFC advisory groups and the establishment of a joint task force on research and knowledge transfer, which will advise on areas of common interest where there are significant opportunities for synergy between the two organisations.

Scottish Enterprise recognises the importance of SHEFC's funding in ensuring the long-term health of Scottish research and its potential for maximising industrial funding streams into Scottish universities. The higher education investment funds are recognised as key components in the development of a strong and sustainable economy in Scotland. As well as being a source of knowledge, science and technology, those funds' major product is the individuals who will be the

entrepreneurs and key drivers of the future.

The priorities for Scottish Enterprise, which are set out in the recent document, "A Smart, Successful Scotland", clearly demonstrate the importance of the university sector to the economy of Scotland. There is a need to re-establish entrepreneurial dynamism, to increase the number of new and growing businesses and to increase the focus on commercialisation of research and innovation. The establishment of more effective links between universities and businesses will encourage increased levels of research and development within Scottish companies.

The universities must be sustained and enhanced to ensure their competitiveness in their domestic and international markets. In many areas of research, they are considered to be world-class establishments and their students are sought worldwide—Scotland is a net exporter of graduates.

The position and reputation of Scottish universities can be harnessed to attract high-value adding global investment. That can take many forms, from the direct funding of research in universities, the establishment of research and development facilities in close proximity to the centres of high-quality research and the location of other commercial ventures that are easily accessible by highly trained quality workforces. The ability of the Scottish university sector to attract research investment from sophisticated global companies is not only crucial to its own competitiveness, but could spill over into the Scottish economy.

We encourage networking within the research and development and strategic business functions of sophisticated global companies, and with academic peers. The Scottish Enterprise network is committed to working in concert with others in support of the university sector to ensure that the maximum benefit and leverage is achieved for Scotland from the sector's people, knowledge and the research and technology that are developed within it.

Marilyn Livingstone: Your submission says that you are

"concerned at the prospect of research rated at level 3 on the Research Assessment Exercise being made ineligible for Main Quality Grant funding"

The submission also calls for an assessment of the impact of that change on the needs and opportunities for research capability and capacity in Scotland. What impact would the change have on your four aspirations for the university sector, particularly the aspiration to increase value from the sector and to increase value in the creation of new businesses, especially technology-based businesses?

Dr Janet Brown: The issue about the funding reduction in the level 3 rated organisations is associated with the fact that, within some of those institutions, there are items of excellence, both in terms of individual research and in growing areas of research that have not reached the visibility level that would merit a level 4 or 5 rating. We want to ensure that those areas can be funded in a way that would allow them to flourish. We need to support research that is rated 4 and 5 because we must ensure the continued excellence of the university sector. However, there are aspects of that on which we need to focus, in terms of both individual researchers and areas of research that need to be fostered.

Marilyn Livingstone: In some of the evidence that we have heard, there has been a suggestion that level 3b and 3a research is often done in conjunction with small businesses and industry. Do you think that that is where the impact of such research being made ineligible for main quality research grants would be most felt?

Dr Janet Brown: That would be an aspect; such research is less basic and tends to be targeted towards answering specific questions within the local community.

11:15

Dr Stewart Brown (Scottish Enterprise): Until we know the results of the next RAE, the impact cannot be fully assessed. That uncertainty is an issue. We might, by the use of a formula, rule out funding for some areas of research that are strategically important, or are on the up. In the most recent RAE, the University of Abertay Dundee had no research activity that was rated higher than level 3. We know now that that institution is doing important media and games activity and is a crucial part of some research that is being done in the Edinburgh area. I hope that the research gets rated higher than level 3 in the forthcoming RAE, but the hypothetical situation exists that a formula might rule it out from funding. We should not take that risk.

Mr MacAskill: Your submission kindly provides a table that compares Finland, Ireland and the UK. Do you think that any option is better than the others? Is something happening in Ireland or Finland that we should move towards? You have stated what is taking place but, given that Finland in particular seems to be rocketing ahead in educational matters, it might be helpful if you could highlight certain elements that we could take on board.

Dr Janet Brown: Scottish Enterprise is examining good practice worldwide in relation to knowledge and technology transfer and the commercialisation of the science base. There is no

"magic bullet" solution. Scotland's situation is unique, as is the situation of every other place in the world. We need to understand what works and why it works and then translate the initiatives that would work in Scotland into an attempt to build a system that will be effective.

Mr MacAskill: Are there such initiatives?

Dr Janet Brown: This morning, people have touched on the distinction between basic research and strategic targeted research on technology. We recognise the importance of basic research, because the long-term success of any economy depends on it, but certain technology development or research that is in an market-driven area, which can bring short-term advantages, does not get sufficient funding in the present environment. We need to consider how we encourage the availability of funding to that kind of research, and we need to consider the direction of that research. Sophisticated companies supply a ready market for such research and we need to provide the money that will ensure that that research can be done, in conjunction with the companies that know what the direction should be. That has been touched on several times this morning. Such cross-disciplinary, multi-organisational research efforts that are on-going in strategic areas are evident worldwide.

The Convener: In paragraph 19 of your submission, you kindly offer to do additional work for the committee. Along the lines that Kenny MacAskill was suggesting, it would be useful if we could have some detailed information on the parallel processes, systems and formulae in other countries. For example, what are other countries' equivalents of the RAE? What weighting is given to patents in relation to the publication of prestige papers?

In as much as comparisons can be measured, how successful are other countries' systems? Is there a split between funding for commercialisation and funding for basic research? If so, what is the split? How is the split achieved and who administers it? Are the development agencies in other countries much more involved in activities? A briefing on those countries would be useful, if that is possible.

Dr Janet Brown: That would be possible. Scottish Enterprise is working on that, as it is crucial that we understand other systems.

The Convener: We aim to complete our evidence by the end of June, although we can probably take briefings over the summer. The more information that the committee has, the better. Such information would be useful.

Dr Janet Brown: We will get some information to the committee by then.

Mr Davidson: I have had discussions with the relevant minister about the mix of commercial funding and funding from the funding council. What recommendations about the mix are you likely to make to the minister in your role as—if you like—a Government agency? There are many complaints in institutions and business about marrying those types of funding. There is confusion about the difference between contract work and genuine research that has pooled resourcing.

Dr Janet Brown: There are three types of research. Contract research is very specific. A company will come in and say, "I want you to solve this problem." Secondly, there is basic research. A university researcher will say that they would like to continue to work in a field in which they are interested and will say what their ideas are. Thirdly, an area in between is defined in terms of market space. If new materials to support semiconductor or optoelectronics development are required, research will be needed. A company will not tell people to work on that particular problem, but something must be done in that area. I would term such work strategic or targeted research, not contract research. We need to consider funding for that area. Contract research is specific to individual companies and should be approached as such. Basic research concerns the freedom of the academic in new fields—the "10 to 15 years away" scenario. We do not know where the next new technology will come from. There is an important middle ground that needs the input of industry and the marketplace as well as researchers. There needs to be a balance. Have I answered the question?

Mr Davidson: You have not said where your organisation is heading.

Dr Janet Brown: We recognise the importance of all three types of research and we need to ensure that people respond in the middle ground as well as in basic research. We will make recommendations.

Miss Goldie: What are the channels of communication between Scottish Enterprise and the higher education institutions and between Scottish Enterprise and SHEFC?

Dr Janet Brown: On communication between Scottish Enterprise and the higher education institutions, there is the local enterprise company network, which has a chief executive in each region. There is interaction between individual higher education institutions and their local enterprise companies. There is also interaction nationally involving Scottish Enterprise to enable it to understand the role of the higher education institutions in the Scottish economy.

Miss Goldie: What is the machinery for that

level of dialogue?

Dr Janet Brown: The dialogue generally takes place through Alan Sim.

Alan Sim (Scottish Enterprise): The organisation that used to be called the Committee of Scottish Higher Education Principals, and is now Universities Scotland, has established a formal relationship with Scottish Enterprise. We meet regularly. Indeed, last week, Janet Brown and I met our executive team to consider areas in which there are opportunities for focused interaction. Without pre-empting the outcome of that, it may be useful for the committee to know that, for example, we are considering how we can scale up the teaching company scheme in Scotland. That scheme is funded by the Department of Trade and Industry and is probably one of the optimum technology transfer mechanisms. With Universities Scotland, we believe that we can scale the scheme up significantly to gain true competitive advantage for SMEs, in particular.

Stewart Brown can probably pick up the mechanism of our relationship with COSHEP. We have a regular and established dialogue on a specific agenda with university principals and their senior management teams.

Miss Goldie: Does that mean that Scottish Enterprise has an interface with individual institutions?

Alan Sim: Scottish Enterprise has an interface with individual institutions through our local enterprise companies and at a national level on issues that we think should be rolled out on a pan-Scotland basis. There is a mix of institution-specific initiatives and conversations at national level about generic issues such as collaboration in areas where we receive feedback from the commercial world that there are gaps in provision in respect of the key Scottish clusters. If those gaps can be covered adequately in Scotland by collaboration that does not currently exist, we will seek to broker that at national level. Locally, our enterprise companies work with the institutions in their areas.

Miss Goldie: On the commercialisation of research within institutions, what harmony is there between the enterprise network and the institutions? Who has an overall picture of the research potential of higher education institutions with a view to either commercialising that research—some institutions do that, but they need help and advice—or brokering an arrangement between the institution and an existing company? I have a vision of people operating in abstracts and I am not sure who turns up and has a good old gutsy face-to-face discussion.

Alan Sim: I will ask Stewart Brown to deal with

the specifics. I am sure that SHEFC will talk about its work in trying to codify research.

A proposition that we discussed with Universities Scotland last week was the creation of a web-enabled portal to bring together the many disparate databases that record research work in Scotland. Stewart Brown is probably better qualified to deal with the specifics.

Dr Stewart Brown: There is a range of mechanisms, in some of which we are proactive. Many involve the network of local enterprise companies in a responsive mode. In the more proactive mechanisms, much of the work is done through a cluster in the sector teams. Recently, for example, microelectronics people in conjunction with academics took a series of workshops to consider research opportunities and needs in that area.

The biotechnology team has a number of interfaces with the university sector in relation to the training needs of the sector's clusters. We engage with the universities in biotechnology and other sectors in respect of their proposed bids for research development grant funding from SHEFC. They often seek advice on the challenges that the cluster faces. As they put together their proposals, we have a substantial interface with them over the development of proof of concept projects. We encourage the universities—both researchers and commercialisation offices—to engage informally before they make proposals. On responsive mode activity, universities with knowledge of their local enterprise companies will seek help on accessing marketing studies and advice on patenting. We run awareness-raising and training courses for a number of university and national health service trust commercialisation activities. There is a range of activities, some of which relate to national programmes. Much activity takes place on the ground to build the bilateral relationship between individual LECs and universities.

Miss Goldie: Does Scottish Enterprise know how many commercialised companies owned by higher education institutions within its area of jurisdiction are actively trading or are facing problems at any one time?

Dr Stewart Brown: We have access to the figures that are published by the universities. There is evidence from several universities that sets out the number of companies in which they have equity stakes. We do not conduct a survey, but that information is available from a number of university sources. In particular, the figures tend to be available for companies that are spin-outs—companies for which the university has conducted intellectual property transactions. I understand that the university sector has less well-documented records of the start-up companies that derive from current or recent faculty members or students.

Miss Goldie: Does that mean that there is a gap in overall knowledge about the enterprise potential that exists in higher education institutions?

11:30

Dr Stewart Brown: We have an understanding of the potential through our dialogue with the institutions. For example, we know that most research-intensive institutions in Scotland have a target of forming three to five spin-out companies per annum. We know the targets that some institutions have set on the number of invention disclosures and licensing agreements. We have less of an idea about the likely number of start-up businesses that might derive from that. That relates to the fact that only relatively recently have the universities and institutions, in part through the Scottish Institute for Enterprise, begun to show an institution-level interest in start-up businesses by students and faculty members, as distinct from spin-outs.

Mr Hamilton: I have a brief question on the work on international comparisons, which the committee welcomes as a strong step forward. Would you mind putting the remit of that inquiry on the record? The committee might want to commission additional research and I do not want us to miss any areas. What is the official remit of the inquiry and, before you came to the committee today, what had you planned to do with it?

Dr Janet Brown: We are trying to understand the entire system and work out how we maximise the benefit of research and technology developments in Scotland. The premise of the study is that, as we consider what we will do differently in Scotland and whether we need to take any additional steps, we need to look worldwide for good practice. We want to examine what we are doing to facilitate commercialisation in technology transfer, knowledge transfer and people transfer within the higher education institutions and the economy. We must examine where we want to go, best practice in other areas of the world and what should be initiated in Scotland.

Mr Hamilton: Were you trying to devise an action plan for implementation?

Dr Janet Brown: Yes. Our work is very much a re-evaluation and a recognition of the fact that the higher education institutions are a key driver in a fast-growing economy. We want to ensure that we maximise the benefits that we get from that.

Mr Hamilton: Have you been asked by the Executive to produce an action plan for implementation, or have you commissioned the work yourself?

Dr Janet Brown: No. The work also fits in well

with "A Smart, Successful Scotland", if one considers the impact that it would have on being able to execute that document. It is a key driver to that, but it was going on prior to publication of that document. This is such a key relationship that we must ensure that it is successful.

Mr Hamilton: When will the results of the inquiry be produced?

Alan Sim: We will take a discussion paper to our board, probably in July. After our board has had the opportunity to discuss it and provide input and guidance we will be in a position, not to publish a definite position, but to start a dialogue with the various partners on what a new proposition might be.

We are a month or so away from putting outline propositions together to fill some of the gaps and perhaps mobilise some of the mechanisms that we have identified from international best practice.

Mr Hamilton: All I am trying to establish is that we will not come at this from different perspectives. It would be useful if that work could be fed into the committee so that we can take a view on it and so that the reports are not contradictory.

Alan Sim: We would be pleased to do that.

The Convener: We have concentrated on best practice and the like. An issue that must be addressed is the scale of investment funding. Just before Christmas, Scottish Enterprise announced £40 million for investment in biotechnology over four years: £10 million a year. Ten days later, the Irish Government announced a three-year programme of investment in biotechnology and information technology worth about £500 million a year. The proof of concept fund, which anyone I speak to agrees is the kind of initiative that we should be taking, is £18 million over three years: £6 million a year. Internationally, we are not at the races in terms of the scale of investment, are we?

Dr Janet Brown: That is one of the matters that we have been discussing inside Scottish Enterprise. We must step up the pace and attract significant additional funding, but we cannot keep coming back to ask for more funding for investment from the public purse. We are considering working with the European Investment Bank. We are exploring alternative sources of funding.

You are right that this is not a cheap game. It has been mentioned several times this morning that we must bring significant additionality. That point will be part of what we present to the board in a few weeks.

The Convener: It would be helpful if the information that you provide for us could include comparative figures. From the research that I have

done, I think that we are not talking about 10 or 15 per cent; we need to multiply our investment by a factor of 10 or 12 to compete. Is that right?

Dr Janet Brown: Yes. We must also ensure that we put the investment in the right place and do not put a monolayer everywhere. We must focus on what we want to do, because that is where we will make the maximum impact.

The Convener: Do you agree that, if we are to compete in nanotechnology, biotechnology and other sectors, there must be a huge change in the scale of investment in both the private and the public sector?

Dr Janet Brown: Yes. You mention the private sector. The amount of money that is coming to fund Scottish research and technology, not necessarily within universities, is increasing by the day. The number of venture capitalists who want to understand what is going on in Scotland is increasing dramatically. Another point that has been made this morning is that it is necessary not only to have the technology, but to have the business proposition ready—all the other pieces must be in place. Scottish Enterprise is evaluating all aspects to ensure that we bring together the business capability and the research and technology so that universities can be successful in getting money from the private sector—the money is there.

The Convener: On Scottish Enterprise's budget plans in this area, what is your current spend on commercialisation and how will it grow over the next two or three years?

Alan Sim: Could we give the committee a written submission on that? I would hate to give the committee figures that were not absolutely aligned. We do not have that information with us.

The Convener: Okay.

We have concentrated on the funding that comes through the research councils and SHEFC, but probably the biggest research budget in the public sector in the UK is that of the Ministry of Defence, which last year was about £460 million: £1.6 million was for work that was carried out in Scotland. Is Scottish Enterprise addressing the issue of getting a bigger chunk of MOD research funding into Scotland?

Dr Janet Brown: We have not pursued that matter. We are trying to understand which areas we want to target and focus on. The MOD considers specific areas. Some of those areas might overlap with areas that we are targeting, in which case we would follow that up and examine it. Some work is going on with the Defence Evaluation and Research Agency and the defence diversification agency.

Dr Stewart Brown: We have a relationship with

the DDA, which works out of the Rosyth Euro Park. The incubator unit there houses the DDA's managers for Scotland. Scottish Enterprise Fife, the Scottish Enterprise network nationally and Fife Council provide some financial support to that incubator unit. The role of the DDA there is to help companies in Scotland to access DERA technology and to give them an indication of whether there is a defence market for their technology.

The Convener: Has Scottish Enterprise talked directly to DERA about getting more research carried out in Scottish universities?

Dr Janet Brown: No, we have not yet done that.

The Convener: Do you not think that you should do that?

Dr Janet Brown: As I have said, I think that we should be doing that but we want to put it into an overall programme so that everything aligns. It is part of what we will do once we have finished the proposal.

The Convener: Stewart Brown mentioned the formula funding for research and the example of the tremendous investment that has gone into the games sector at the University of Abertay Dundee.

Hypothetically, the University of Abertay Dundee could be given a grade 3 research rating and miss out on some of the more lucrative funding. Does that suggest that there is a need for twin tracking of research funding? I am not talking just about the distinction between basic research and commercialisation. Perhaps research funding to universities should not be determined entirely by the RAE or SHEFC. Organisations such as Scottish Enterprise are much more industry and market-driven. If we did not confine ourselves to one source of public sector research funding for higher education in Scotland, but had a multiplicity of funding sources, that might reduce the chance of missing golden opportunities such as the games cluster in Dundee.

Alan Sim: You make a very good point. Historically, the enterprise network in Scotland has not funded research. At one stage we thought that we could not fund it. We have sought clarification on that and, provided that the outcome of the research activity is an economic benefit for the community, we are in a position to fund research. Our next board meeting will consider a proposal to do just that in a specific, focused area. As soon as that proposal has been debated, we will be in a position to discuss it further. The proposition that we should use public money from an economic development source to fund research with a specific economic development outcome is a robust one, which the executive management team and, we believe, our board are well disposed to supporting.

The Convener: Dr Taylor from the OST indicated that it is very difficult to measure the economic impact of research. I believe that you have done some work that demonstrates that the economic impact of research activity is very substantial. Is that right?

Alan Sim: Indeed. We can supply the committee with further information on that.

The Convener: You may also want to pass it on to the OST.

Alan Sim: In Scotland we have the benefit of dealing with a much smaller community. There is a high degree of visibility and the metrics are much more manageable than they are across the UK. For that reason our knowledge base is much better developed in Scotland.

Dr Janet Brown: We still have to work on improving our understanding of the peripheral benefits of research. We are considering that issue.

The Convener: A key element of your commercialisation strategy is Technology Ventures Scotland, which has given evidence to the committee. It strikes me that, given the size of its remit, Technology Ventures Scotland operates with something like one man and his dog. How do you see the future role of Technology Ventures Scotland? Is it sufficiently well staffed and funded to have any hope of fulfilling the remit that it has been given?

Alan Sim: I ask Stewart Brown, who sits on the board of Technology Ventures Scotland, to respond to that question.

Dr Stewart Brown: I will describe the rationale for the decision of Scottish Enterprise and SHEFC to fund Technology Ventures Scotland. The inquiry into the original technology ventures initiative revealed that it was no longer fit for its purpose. However, it was felt that we still needed to provide the range of stakeholders involved in commercialisation with a place where they could come together to address in a collaborative fashion the big challenges and opportunities that they would not address alone.

We see Technology Ventures Scotland not as an organisation that delivers services, but as a facilitator. The potential power of Technology Ventures Scotland lies in its steering group—the range of stakeholders who come together in a unique forum. The group brings together the research community, some of the network groups that support the clusters, the enterprise network, Universities Scotland, the Executive, commercialisation managers and some people from the investment communities. It gives them an opportunity to explore the key issues that represent barriers or opportunities. We have a

relatively light touch and play an enabling role. The success or failure of the venture will be measured by how much power the steering group generates.

The Convener: Alan Sim referred to the DTI teaching company programme, which has a very successful track record in this field. He also spoke about the graduate placement programmes funded by the enterprise network, particularly in technology. There are about 70 such programmes, which have had varying degrees of success. What is the future for them?

Alan Sim: You have identified an area where rationalisation is of paramount importance to us. In parallel with our many other activities, we are reviewing how some of the confusion may be removed. We want to have more overarching Scottish initiatives, rather than such a large range of well-intended and effective local ones.

The Convener: Additional information on that would be helpful. Our report must be evidence-based, so the more evidence that you can provide us with, the more we can say.

Mr Davidson: I have a final question to Mr Sim. Institutions have complained to me that, if they receive funding through the local enterprise company, it is conditional on providing new jobs or support for the LEC's SMEs and local exercises. For example, if the University of Glasgow does something wonderful, it cannot benefit the economy of Grampian. Are you reviewing that?

Alan Sim: We are. One of the key issues in the review is our regional structure, which demands that investment in one area generate a return in the same area. I suspect—and fervently hope—that the anecdotal evidence the member cites is historical. Dr Janet Brown is establishing a team of interested practitioners from across Scotland to address the issue that Mr Davidson raises. The investment that we will propose to the board next month is located in a specific geographical area. However, the level of that investment is such that the benefit of it needs to be driven into businesses across Scotland. We are putting in place a mechanism that will ensure that the situation that Mr Davidson describes does not occur.

The Convener: Thank you for your evidence, which has been very helpful. I apologise to the witnesses from Scottish Enterprise for keeping them waiting. I also apologise to the SHEFC representatives. We will take a short break before hearing the evidence from SHEFC.

11:46

Meeting adjourned.

11:54

On resuming—

The Convener: I welcome John Sizer and his team from SHEFC. Rowena Arshad and Professor Vicki Bruce are board members. I apologise for keeping you waiting. It has been a fairly long meeting, but I hope that you found some of the earlier evidence as interesting as we did. We have received your written evidence, which, as usual, has been very helpful. Would John Sizer like to make a few introductory remarks, after which we will proceed to questioning?

Professor John Sizer (Scottish Higher Education Funding Council): Yes. This morning's discussion has illustrated how important the funding issues that you are addressing are to Scotland's success in developing a knowledge economy. I shall say a little about the council and introduce my colleagues, after which I shall turn to our proposals for funding teaching and research.

We are the largest non-departmental public body in Scotland, with a budget of £600 million this year that will rise to £670 million next year. That budget is intended to support teaching and research in 20 autonomous Scottish higher education institutions. We seek to deliver ministerial guidance and ensure that the sector meets the needs of students, employers and society in Scotland. Our objectives and priorities are contained in our corporate plan, which was not only agreed by the minister, but prepared after extensive consultation with stakeholders.

The committee invited the council's chairman, Dr Chris Masters, to attend the meeting this morning. Unfortunately, he had a long-standing commitment abroad and sends his apologies. I am the chief executive of the council. Rowena Arshad is the director of the centre for racial equality, which is now in the University of Edinburgh and is formally part of Moray House Institute of Education. She has a particular interest in social inclusion issues, was a member of the Cubie committee and is chair of the council's specialist institutions group. Vicki Bruce is the deputy principal of the University of Stirling, the president of the British Psychological Society and the chair of the research assessment panel for psychology. She is the only Scottish member of the UK Council for Science and Technology, which advises the Prime Minister, and she was, until recently, the chair of the council's research policy advisory committee.

I emphasise that the proposals that you are considering have been subject to wide consultation with students, employers, institutions and other stakeholders, and they throw up some important issues regarding how best to develop the Scottish higher education sector for the benefit of Scotland. The council wants the proposals to be

debated widely.

Teaching accounts for £488 million of our grants. The present system was developed shortly after SHEFC was established, some 10 years ago. There have been major changes in policy, structure and society since then, and the funding model must be modernised to meet the needs of Scotland's knowledge economy. The council came to that conclusion at the same time as the then minister, and the higher education sector felt that a review should be undertaken. The review was started in 1998 as a three-stage process to examine strategy, structure and process—in that order. During the first stage, we consulted on the broad objectives—the criteria and options—and invited input from end users as well as from institutions, including businesses, employers, student bodies and the unions. At the end of the first stage, there was general agreement that a broader, more flexible funding method would help institutions to meet students' and employers' needs.

We then began to develop detailed proposals, taking advice from a group of sector experts, the prices working group. The group tried to return to first principles and accurately identify the costs of teaching different subjects. However, even after an eight-month study, our consultants and the prices working group recognised that they could not find any robust evidence. Nevertheless, the consultants' report informed the subsequent work of the council and it was made available to all the institutions and the other bodies that we consulted, so that it could inform their responses to the consultation.

The council fell back on its knowledge and experience to construct a set of proposals. We were aware that they were not as robust as we had wanted them to be, nor what we had set out to achieve; however, in principle they are a major step towards modernising the system. We sent the proposals out for a lengthy consultation, over three months, fully expecting that they would have to be refined in light of the feedback that was received. At all times, we explained to our colleagues in education that it was a consultation process and that the proposals were not set in tablets of stone. Several of the proposals received widespread support, and some are already being implemented. We have emphasised all along that we will ensure that changes are manageable for institutions. For example, we agreed that the art colleges, which face specific diseconomies, should be designated as small, specialist institutions, and they will receive funding in recognition of that.

12:00

We are now carefully examining the consultation responses. We accept that there are concerns in

two major areas, which require further consideration in discussion with Universities Scotland. We will hold the first of a series of meetings with Universities Scotland in June. However, given the general agreement on the need for a broader, more flexible funding method, we are determined not to throw the baby out with the bath water. I am sure that the committee recognises and appreciates the fact that innovations cannot be made without change. Our aim is to achieve majority support for the changes that must be made to meet Scotland's needs, to provide good value for money and to give institutions the flexibility to meet local and social needs. I emphasise the fact that the proposals are not simply about how to share the funding cake so that no institution's share changes and everyone is happy. Nevertheless, the council fully accepts that the changes must be manageable.

I refer now to research. Universities have always been in the business of research, innovation, and knowledge generation and transfer. As we have heard this morning, they are a critical factor in the success of competitive, knowledge-based economies. SHEFC and Scotland's universities have been very successful in developing Scotland's research base and undertaking excellent research, as John Taylor illustrated. We are ranked third in the world, for our size, in research publications. SHEFC aims to boost our research base further and realise its potential benefits to Scotland. Our priority is therefore to fund research that is excellent and relevant to the future.

In the academic year 2001-02, we will distribute £116 million—75 per cent of the funding—to support Scotland's proven centres of national and international research excellence. Institutions already generate more than £250 million in research income from other sources, bringing wealth and jobs into Scotland and leveraging up the investment that we make. About £20 million is to be used to strengthen the international competitiveness of our science research base, through strategic investments in the infrastructure, as John Taylor mentioned. About £10 million is focused specifically on areas in which research strengths could be further developed to Scotland's benefit. In allocating that funding, we take account of policies such as the Government's foresight priorities and Scottish Enterprise's cluster strategy. I highlight the fact that the initial investment in games technology at the University of Abertay Dundee was made by the council as a research development grant, and the University of Abertay Dundee has successfully built on our investment.

The consensual view that is held by our colleagues in higher education and business stakeholders is the same as the council's: that excellence in research is the most reliable guide to

future benefit, although there must also be effective knowledge transfer—which is what you have been discussing this morning. The proposals for future funding, which you are considering, aim to release the even greater potential of research to benefit Scotland. We have consulted extensively with users and providers on the way forward. There is widespread support for our proposals, although, as we have recognised this morning, we might become the victims of our own success.

We do not yet know what the outcome of the research assessment exercise 2001 will be. It is possible that the volume and quality of research will increase so much that it will prove difficult to maintain the funding for all the research at 3a and 3b levels—which is currently more than £20 million—while maintaining the funding for research at 4, 5 and 5* levels. We recognise that in our proposals for research development funding for priorities but, as was discussed this morning, the success of our researchers might well cause a problem, because we might not have sufficient resources to maintain the funding that is provided to 3a and 3b-rated departments. It is hoped that many of those 3a and 3b departments will perform better in this round and become 4s or possibly 5s.

I emphasise that excellent research is expensive. Hard choices are inevitable, particularly where there are major strengths in Scotland, such as in the biomedical areas. We deliberately stimulated a wide-ranging debate on what Scotland's priorities should be. The matter is for the Scottish Executive and the Parliament, as well as the council, so we welcome the committee's inquiry and the debates that are taking place.

As was discussed, the commercialisation of intellectual property is at the core of the Scottish Executive's economic development strategy to create a knowledge-driven economy. As Scottish Enterprise mentioned and highlighted in its submission, we are working closely with it to help institutions to build on the substantial income that they generate through the commercialisation of their intellectual property.

We are working together not only on Technology Ventures Scotland, but on Connect. We provide £6 million in grants to improve the professionalisation of commercialisation, which we discussed this morning, and we have established a joint working party with Scottish Enterprise, which will not only consider our respective roles, but make proposals to improve the synergy between those roles. The working party is inquiring into arrangements in other countries. The work that was referred to in the previous presentation will be fed into that joint group.

The outcome of the committee's wide-ranging inquiry will inform our further consideration of our

role, particularly in knowledge transfer, but also in other aspects into which the committee is inquiring. We are happy to be here and look forward to answering your questions.

The Convener: Thank you, John. That is helpful. I noticed in your latest newsletter, which I received yesterday, that you have set up a strategy review of higher education in Scotland, which involves people such as Charlie Woods from Scottish Enterprise. Does that mean that the formula that you reached after the consultation exercise, which you announced and included in your latest consultation documents, will be superseded by the strategy review?

Professor Sizer: The strategy review group is taking a longer-term view of the strategy for further developing the Scottish higher education system as a whole. It will do an analysis of strengths, weaknesses, opportunities and threats and some scenario analysis, and will provide the basis that will generate discussion of the council's strategy over the next 10 years. The minister is aware that the group has been established and will link in with the quinquennial review that is about to take place in SHEFC.

The Convener: Is that strategy purely for funding, or is it wider?

Professor Sizer: The strategy will take a wide-ranging view of the council's role in supporting the strategic development of the higher education sector in Scotland.

The Convener: As a housekeeping matter, I suggest that it might be useful for us to have an unofficial meeting about that, because our next inquiry will be into lifelong learning. We do not want to waste public money, and I notice that you have advertised for a consultant to undertake a SWOT analysis. It would be crazy to duplicate the work that you and we are doing. We should have a dialogue on that.

Professor Sizer: We should be delighted to do that.

The Convener: In your newsletter, some concern is expressed about changes that the Quality Assurance Agency for Higher Education is introducing in the quality of teaching measurements in Scotland. Will you comment on that?

Professor Sizer: As you know, ministers down south made announcements about future expectations of the level of quality assessment to be undertaken in England. As a consequence, we discussed with the QAA, the Scottish Executive and Universities Scotland how the situation should develop in Scotland. A strong desire still exists to remain part of a UK system. However, the council is of the view that it should not simply sign up for

whatever is being decided in England and that it should determine what is most appropriate for Scotland. We are in the process of setting up a joint group of the council, the Scottish committee of the Quality Assurance Agency for Higher Education and Universities Scotland to review whether and how the quality assurance system in Scotland should be developed in the light of developments in England. I cannot tell you much more at this stage.

The Convener: We will probably revisit that during our lifelong learning inquiry.

Professor Sizer: I should have thought that the review would be quite important to that.

The Convener: The matter touches on our present inquiry, but is more relevant to our lifelong learning inquiry.

Professor Sizer: There are questions about the extent to which the higher education system in Scotland should be part of a UK-wide system and the extent to which it should market itself as a distinctive Scottish system. I am sure that that will be part of your inquiry.

The Convener: I will move on to research and funding. What is your opinion on the research assessment exercise formula, which seems to reward prestigious articles substantially but does not reward innovation or commercialisation in patenting and so on?

Professor Sizer: I ask Professor Vicki Bruce to answer that question. If she wants me to answer after that, I will do so.

Professor Vicki Bruce (Scottish Higher Education Funding Council): A substantial part of the research assessment exercise focuses on the quality of nominated publications, but that is not all that the panels can consider. They also have statements of the impact of work and, in some areas—my subject is one example—a panel of user representatives will consider the claims that are made about impacts in commercial and other areas.

The panels focus—rightly—on the quality of research as adjudged by publications, but that is not all that they take into account when reaching their quality conclusions. Moreover, the panels take into account the amount of external research income that is earned, at least in some subject areas, and pay due attention to research income that is earned from industrial sources as well as from research councils.

The Convener: In the evidence that we have received, the issue has been the weighting of those considerations. Publications seem to be weighted fairly heavily. Patenting, products and spin-offs do not seem to be weighted nearly as heavily as prestigious publications.

Professor Bruce: In the research assessment exercise, it is appropriate that a good deal of weight is placed on quality, and publications are one way of discovering quality. There is a debate to be had for the future about how we take into account other measures of impact and relevance alongside quality as judged by publications. That debate has started for this round of the RAE, but needs to go further.

The Convener: Have you made any suggestions on any proposed changes to the formula for this round or later rounds?

Professor Bruce: Our formula is based on the rated quality of the research and the volume, and includes minor volume indicators, which contain measures of industrial funding as well as other external income. SHEFC and other funders can deliver funding for the research base in other ways, which may be outside the formula altogether. The SHEFC research development grant has been a good example of how non-formula SHEFC funding has been used to stimulate the building of research in areas that have relevance for the economy generally and the Scottish economy in particular.

The Convener: Dr Taylor from the Office of Science and Technology referred to the development of ways of trying to measure economic impact and importance and so on. He referred particularly to the metrics that are required and the more metrical approach. Has SHEFC fed into that process at the OST? Can we have a copy of your input into that process?

Professor Sizer: I will just go back one point. I was involved with the first development of the research assessment exercise as it was originally formulated in 1986. I emphasise that extensive consultation takes place at each stage about the format of the exercise. The exercise is not simply something that the funding councils do. Extensive consultation takes place and there has been almost unanimous buy-in to the proposals. Generally, it is recognised that each panel develops its proposed criteria, which are also consulted on. A very transparent consultative process is used. For the next exercise, the funding councils have jointly agreed to initiate a review after the present exercise is finished, early next year. Clearly, the output of the committee's inquiry could feed into that review.

I refer to the metrics—that is an interesting word, which was not used in my world until two or three years ago; metrics used to be called performance indicators. There is a joint group that involves SHEFC, the Higher Education Funding Council for England and the OST. That group is working on the development of United Kingdom performance indicators. There is also a joint group that involves the Scottish Executive, SHEFC and Scottish

Enterprise, which is working on the development of Scottish performance indicators. We are happy to let you have details of where we are on that.

12:15

The Convener: My final question relates to your research development grant system. You have already referred to the tremendous success at the University of Abertay Dundee and to the games cluster. What are SHEFC's plans for research development grant funding? I believe that it is referred to as top-slice funding.

Professor Bruce: Research development grant is one way of dealing with the problem, which has already been alluded to, of funding research in areas that are not yet graded at levels that would attract funding through the funding formula. A research development grant is one way to target research developments in particular areas.

In the current framework, the research development grant has funded a number of areas, some of which do not receive RAE-based funding because they may be in departments that did not get at least a 3 in the previous RAE. There is no formula funding for activities in grades below 3 at present.

In the research consultation proposals for the future, it is suggested that if there is insufficient money to support research on a formula basis below the level of a 4, there are different ways in which research development grant funding could be targeted at particular areas. One way is the strategic research development fund. That would be a bid scheme, a little bit like the current research development grant, which, as we have already heard, was used to stimulate research that is relevant to the computer games industry in the University of Abertay Dundee.

There are other possibilities. The research development foundation grant is a suggestion which means that, on a different formula—one that is linked to external research income—departments that gained less than the quality threshold would nevertheless receive some research funding.

The Convener: It might be useful if you could furnish us with information on the outcomes or impacts of the research development grant funding to date.

Professor Sizer: We should be happy to do that. We present a report to the SHEFC council. As accounting officer, I obviously have to satisfy myself that people deliver what they said they would when we provided the grants.

The Convener: Does that report include the different options that you are considering for the future?

Professor Sizer: Yes.

Professor Bruce: In fact, for the research development grants that we have been funding during the past five years, we have just completed the first-wave evaluation of the first set of development grants. I think that the report, which was in draft form when I saw it, will be finalised quite soon. It shows, in considerable detail, an evaluation of the grants that were funded in the first round. Continued evaluation of those grants and their impact will be built into the research development grants.

The Convener: It would be useful for the committee to get a copy of that.

Professor Sizer: The report will be ready for the next meeting of the SHEFC council, I am told. That is on 22 June, so I am sure that we can fit in with your timetable.

The Convener: Excellent; lovely. Thank you.

Miss Goldie: Professor Sizer, in the evidence that we have taken and as acknowledged in your written submission, concern has been expressed by a number of institutions that many of SHEFC's proposals were not adequately evidence based. Indeed, you seek to address that in your written submission.

Let us consider your attempts to allay fears. In your written submission, you say, acknowledging that the report by J M Consulting was perhaps inadequate for your purposes, that

"In the absence of robust evidence",

you adopted

"a 'first principles' approach".

My concern is to ascertain what the point was of procuring the report if you did not intend to pay attention to it and on what basis you apply "first principles".

Professor Sizer: We started off by wanting to go to first principles. There was a view that teaching technologies had changed and were changing, and the nature of courses was changing—they were becoming more multidisciplinary—so, in agreement with the prices working group, we commissioned the report to see whether it was possible to produce robust evidence that would allow us to look at the relativities between different groups of funding.

As we demonstrated with the example of physics, it is difficult in the Scottish system—in which we have no common syllabuses and have a variety of types of course that might come under the heading of, for example, physics, economics, or business and management studies—to get hard, robust evidence, particularly because at the moment there are no costing systems within

universities that separate the costs of teaching or research or consider in detail what courses cost.

We took evidence. J M Consulting came back to us, said that it had done the best that it could on the evidence, and presented us with the best picture that it could produce. The prices group and J M Consulting advised us that they did not think that the evidence was sufficiently robust for us to determine the relative costs—the exercise is essentially about relative costs between different areas—and come up with some fair proposals.

The group that I chaired and which had been set up by the SHEFC council felt that we should initially group subjects. We had a range of subjects. We broke them into bands, took prices in similar bands and worked out the weighted average. We considered specific situations, such as medicine, from which we had had substantial submissions. We were conscious that funding for medicine was significantly less generous than in England; it was one of the few areas in which that was the case. We adjusted for medicine. We then decided to consult the sector, make the prices working group report available, make the J M Consulting report available and observe the reaction.

As we said, people in a number of subject areas have raised concerns. Our proposals are not about funding individual subjects. We want to give university principals much more flexibility in how they fund institutions, because the market is more dynamic and more interdisciplinary and multidisciplinary courses exist. If we want the institutions to respond flexibly to the rapidly changing market needs and the knowledge economy, we need to allow the principals and the senior management teams to determine how funding should be allocated.

There was a misconception that our proposals represented the funding that was to be provided for a particular subject rather than that they were proposals for a broad band. We have had the responses to the consultation. They have brought a number of areas to light. Universities Scotland has said that it would like to discuss them with us, and that is what we propose to do.

The broad view of the SHEFC council is that, if we do not simplify the system, we inhibit the flexibility of the institutions to respond to needs. However, I have two council members here who have listened to the debate. I ask Rowena Arshad and Professor Vicki Bruce whether they want to add to that.

Rowena Arshad (Scottish Higher Education Funding Council): It is important to remember that the debate has not been about the reduction of the 22 categories to six, which is what we are proposing. Much of the debate has been about

which subjects are put into which funding category. We will be talking to Universities Scotland about that.

There is no final picture at this stage. However, it is important that we stick to the principle of allowing flexibility. We are decentralising. We are saying to universities that, in their local areas and their discussions with LECs, they now have the flexibility of a range of subjects in a particular banding. That means that it is up to them to decide. If they wish, for example, to innovate and create a new course to address some of the issues that come out of their research agendas, they have the flexibility to do that. Previously, they could not have done that because they would have been tied to the 22 categories.

On the other hand, there is concern in some of the consultation responses that certain subject areas might lose out and not be given sufficient weighting. We work as a funding council to the principles. It is up to the individual institutions to manage the funding, to examine the subject groupings that we have given and discuss the matter with their collaborative partners, which might include further education. I want to bring in further education because we are particularly aware of the FE-HE interface. We want to encourage and expand that interface. A particular institution might say, "Well, okay—this area appears to be underfunded. As an institution and as an area partnership, we will invest in it." That institution will now be able to make that investment.

As a funding council, our responsibility is to consider the overall higher education picture and to group accordingly. However, we cannot say exactly how each subject area has been funded. As Professor Sizer said, we have not done that. There has been confusion—perhaps people thought that we had said that, but we have not.

Miss Goldie: Professor Sizer, the replies that we are being given are helpful. I am sympathetic to the concept of trying to give institutions a little more autonomy in relation to how they decide to allocate their resources. However, some institutions are concerned that the six groupings are structured in such a way that the tap that provides resources will be turned off for some of them. I am slightly apprehensive that the process may be discredited. A degree of scepticism about the robustness of the definitions in the six groupings comes through strongly in the evidence taken by the committee. How would you answer those critics?

Professor Sizer: When we went through the first stage of consultation, there was agreement that we should reduce the model and simplify it. I do not think that the concern has been whether we should have six groupings; rather it has been

about the composition of those groupings.

Miss Goldie: I agree.

Professor Sizer: Whether one likes it or not, academics from any subject area always say that they are underfunded. It is inevitable that, when a consultation exercise is initiated, people will say, "We are in the wrong group. We want more money". If ministers were able to make more money available, that response would be fine, but the council must allocate its funding in relation to the amount that it receives.

We said, "Here are the broad groupings and this is where we think the subjects fit in". It is inevitable that some subjects will fall into boundary areas, and we are aware that some institutions have been discussing those subjects in the press. However, we have also received many sensible written comments from other institutions. We summarised the information we received and made the analysis of the responses available to Universities Scotland, which said that it would like to discuss it with us. We think that we can find a way forward because both organisations want to simplify the model.

I cannot tell you at this stage whether we will come to an early agreement with Universities Scotland, but this is not just about reaching an agreement with Universities Scotland, as we must deliver the minister's guidance. My feeling is that both sides are keen to see whether we can arrive at a broad understanding.

I should point out that this work has already been undertaken in England, where the model was simplified. There was not the debate in England that there has been in Scotland because Scotland is a more inclusive, intimate place. We knew that we would have that debate, but now we must respond to it. Some of the debate happened to get into the columns of the press, where it was distorted. Other people sent us sensible responses and we are working with those people.

I will ask Vicki Bruce to give you her side of the story.

Professor Bruce: Understandable concern has been expressed by institutions that have considered what they thought the impact of the set of proposals in the consultation document would be. There are two distinct elements to that: one is to do with the six funding bands and the other is to do with the consequences of changing the way in which fees-only students are dealt with. The impact of the fees-only element had consequences that were regarded as being particularly alarming.

The models that were being run and that gave rise to concern were based on the funding levels that operated in 2000-01, whereas the total

amount of the funding umbrella that would be in operation two or three years downstream would be uplifted. In the consultations that we are continuing to hold with the sector, it will be important to consider separately the funding bands and the way in which the funding of fees-only students is developed.

ProfessorSizer: We made a mistake in the way in which we initiated the consultation on the incorporation of fees-only students into the core model. I subsequently wrote to institutions to clarify that point. I think that the institutions took our initial proposal as being the only proposal on the table, but what we said was, "We believe that we need to incorporate fees-only students into the core model, and here is one way of doing so. We would be interested in receiving other proposals."

I clarified that point later and Universities Scotland told me that it will bring to our discussions alternative ways of incorporating the fees-only students into the core model. As Vicki Bruce said, the impact on individual institutions was probably more a function of our initial proposal for discussion than a function of the banding of subjects.

12:30

Miss Goldie: I will move on to research: the attempts to address concerns about the funding of 3a and 3b departments and the establishment of the two development grant funds. As I understand the position, the research development grant fund will have an annual budget of £5 million. Is that correct?

Professor Bruce: The research development foundation grant is a proposal. None of these ideas is set in stone because they partially depend on the results of the RAE.

Miss Goldie: However, £5 million is the intended budget.

What about the strategic research development grant? Is there a proposed funding level for that?

Professor Bruce: The funding is currently approaching £10 million, but it includes a number of strands. If that grant is implemented as envisaged, it would be expected to be at least £5 million and perhaps more than that.

Miss Goldie: Is it your intention to use those funding sources to address concerns raised by institutions that feel that they may be prejudiced in relation to 3a and 3b—

ProfessorSizer: Those funds are not solely concerned with the 3a and 3b departments. We could give you a detailed list of previous research.

Miss Goldie: That would be helpful.

Professor Bruce: If the research development foundation grant is introduced as proposed, it will echo a model that was used some years ago, when research in lower-rated departments was stimulated in proportion to their external fundraising capacity.

However, the strategic research development fund will be much more like the present research development grant, which might be targeted at areas that do not reach a particular quality rating. The proposed fund might be targeted in other ways such as, for example, building Scottish-based research facilities so that researchers in networks across Scotland could gain access to those facilities. In such a case, funding might go to a department with a high rating or to a collaboration between departments, some of which have high ratings. We do not want to be restrictive about the ways in which we would use the strategic research development grant. Different activities could help develop research in different ways.

Marilyn Livingstone: I want to go back to explore Annabel Goldie's earlier questions on the teaching funding review.

You have gone a long way towards explaining some of the issues that have been raised in evidence with the committee. However, there remains great concern out there. When one makes a change, it is obvious that there will be winners and losers—that is how people see change. However, people are concerned that the decisions have been taken. They welcome greater flexibility for individual institutions and I do not think that they are concerned about having six funding bands. However, we all agree that we have established that the concern comes from where institutions are placed in the funding bands, as that is where there will be winners and losers. For example, if the art colleges had not been given small specialist institution status, they would have been big losers to the tune of a 14 or 15 per cent drop in funding. That is a scary prospect for institutions, about which many members were lobbied.

The issue seems to be the lack of an evidence base. You have explained in detail why that is the case, and your explanation has been helpful. However, there remains a feeling that the review needed to be radical and evidence-based and, from the evidence that we have taken, people do not think that it was.

In paragraph 51 of your submission, you say that you want to make progress in the review, but that you are willing to take "as long as necessary" to reach a conclusion that suits everyone. We are both talking about carrying out major inquiries. What do you think about the time scale, and how will the further evidence that may be taken fit in?

That is my first question. My second question is related.

Professor Sizer: May I answer that first question? I am getting old, and my memory is not as good as it used to be. First, the art colleges have small institution status, but I should emphasise that previous inquiries have shown that the art colleges in Scotland are very well funded relative to art colleges in England. We have treated them well, nevertheless we are addressing the situation. It is always difficult to develop a funding model that meets the needs of large comprehensive universities and at the same time deals with small institutions, which is what Rowena Arshad's group said.

You said that we have to develop something that suits everyone, but I am not sure that we can do that. I hope that we will produce something that the majority of institutions accept balances our responsibility to deliver ministerial guidance and their wish to, as far as possible, have no significant change in their funding. We have set up three meetings with Universities Scotland. As we said in our submission, a large chunk of the proposals have been signed up to, and some we have already introduced, such as premiums for students from socially excluded areas. We envisage taking the group of proposals to the council fairly quickly.

The discussions on the other proposals will take place over the next few months, after which I will report to the council, probably in September or October. The council will then decide where it wants to go from there. The new transparent review system that is being introduced, which primarily is to deal with the research side, is a very sophisticated activity-based costing system. It will take many years to get in place, and it is doubtful whether it will tell you the difference between different types of physics courses. We will want to come to a broad understanding, but recognise that the council will have to peer-review the model in the light of new evidence.

It is difficult to put a precise time scale on that, but our hope is that we will be able to begin to introduce the changes in 2002-03. We may well want to phase them in, particularly given the discussions on consolidating fees-only places, which is the bit that upsets some institutions. We may well look at alternatives that involve phasing in that change, or we may not incorporate all the fees-only students into the model and then phase in the change.

We have to have the discussion with Universities Scotland, but until I have those discussions it would be wrong of me to commit SHEFC in a session like this, because Universities Scotland would feel that I was going into this with a deadline, and I am not. We are genuinely going

into this with an open mind. That is all I can do to reassure you. The Minister for Enterprise and Lifelong Learning said in response to a written question this week that she will have to be informed of our final proposals, and she will have to decide whether she wants to give further guidance to the council, as is appropriate.

Rowena Arshad: May I add to that? As a council member, I wish to provide reassurance. We cannot deny that change is required. We have said that there will be change. Change is good—it is not always bad—but we will be very mindful of the pace of that change, so that we can minimise turbulence and seek more evidence, as John Sizer said.

As a member of the council, I think that it would be fair to say that our duty is to rationalise and look for the best for Scottish higher education overall. It would be naive to assume that there will not be winners and losers. It may be unhelpful to call them winners and losers, but that is what the institutions will view them as, so we may as well use those terms. It is incumbent upon us as funders to ensure that we also consider efficiency, collaboration, transfers of skills and the whole package. However, on behalf of the council, I can reassure you about timing and minimising turbulence. John Sizer has already said that.

Marilyn Livingstone: I have two brief points, and they are related. First, we all welcome the commitment to widening access. It is long overdue. One of the issues that we have discussed is skills shortages, especially in science and technology. There is a gender issue: when new technology started to become a big player in the economy, a large number of women were taking degrees and higher national certificates and diplomas in the relevant subjects, but that number has dropped. When you look at widening access, will you consider gender? Secondly, we heard evidence from one of the new universities that if it wanted to work in schools with the 10 to 12 age group, for example, to promote an interest in areas in which there will be jobs in future, no funding would be available from SHEFC. Would you consider funding that?

Professor Sizer: There are two aspects to that. I will ask Rowena to talk about the widening access programme and the programmes that we fund to link with schools. On your first point, the council initiated the women in science and technology programme ahead of the rest of the United Kingdom. That has become a UK programme, and is outside our direct management, although we are involved in steering it. That is an issue for the OST. I could not say at the moment that we have a particular stream in our funding model that prioritises applications from females for science and engineering courses.

Whether we should I do not know—we may have the Equal Opportunities Commission or some other group on our backs—but we are addressing your second point.

Marilyn Livingstone: To clarify, I meant the promotion of areas in which there will be jobs, which is why I linked it to working in schools. It is all about perception.

Professor Sizer: Rowena will tell you about GOALS in Glasgow, which stands for greater opportunity of access and learning in schools, LEAPS in Edinburgh, which stands for Lothian equal access project in schools, and other programmes.

Rowena Arshad: You are right to pick up on gender, because in the widening access initiatives the council became aware of the fact that the main focus has been on postcode analysis of social class groups 4 and 5. We have been at pains to ask people who bid to us where the gender element is, where the ethnicity element is and where the disability element is within that grouping. At the moment, there are still elements of compartmentalisation: the view is that you are dealing with race, or you are dealing with gender, or you are dealing with disability. We are asking for mainstreaming in bids, and that is one way to tackle the issue. In fact, that is the way to tackle it, rather than continuing to set up separate funds for a range of areas.

In regard to working with schools, you hit on an important area that I would not describe as embryonic, but it does require development. That is where the FE-HE collaboration comes into force. GOALS was funded through the widening access initiative and is very much about working with schools, as is the LEAPS programme. We also have to tie in the FE role, so we are all working in partnership with each other, not separately.

This is an area that the council is looking to improve on in relation to the widening access initiative and our partnership work with schools. We are also involved with two other groups. Community Learning Scotland provides links through adult education initiatives, and we have links to trade union and worker-based initiatives, which we are discussing with the Scottish Trades Union Congress in June.

Professor Sizer: Today and tomorrow there is a conference on widening access, to be held jointly by SFEFC and SHEFC at Heriot-Watt University, to discuss the report that Joyce Johnston chaired on behalf of the two councils into a joint action programme on widening access. It is at the top of our agenda, but I hear what you say. We need to follow that up.

Elaine Thomson (Aberdeen North) (Lab): A lot

of my questions have been asked. One issue that was flagged up to the committee and to me about the original proposals concerned the new banding, which you have said everybody welcomes, and its simplification into six areas. The net effect of certain institutions losing out seemed to fall disproportionately on some of the new universities. Universities such as the Robert Gordon University in Aberdeen were affected quite badly. Is Professor Sizer confident that he will be able to address such issues in the consultation process?

Professor Sizer also talked about fees-only students and fully funded places. Another concern that was raised related to professional courses that are allied to medicine, which always have to be fully funded. However, the original proposals would have benefited those with a higher number of fees-only students and institutions could have lost out on that basis.

12:45

Professor Sizer: Taking that final point first, we recognise that our original proposal was not a good proposal in that we grouped together some subjects that were controlled with some that had fees-only students. We want to revisit that issue.

To answer Elaine Thomson's first point about the impacts on different institutions, I assure her that if the consultant's report had been accepted, it would have given swings of plus or minus 25 per cent, which was not acceptable. My groups gave the range for the institutions that they looked at, without naming the institutions, as that would have compromised many council members. Those that gained most benefit included two of the new universities. The mix of pluses and minuses was not simply a question of the old universities being the pluses and the new universities being the minuses, but rather the opposite, as there was a range.

I am aware of the issues at Robert Gordon University, as I have had considerable correspondence with the principal, Professor Stevely, to whom I gave various reassurances. As the correspondence stopped some months ago, I hope that he is assured that we are going to take his concerns seriously.

Elaine Thomson: I want to follow up on Marilyn Livingstone's point. School shortages are opening up across the Scottish economy in any area that can be named. To what extent has Professor Sizer taken those shortages into consideration in his design of the review, and how will that affect the allocation of money? Marilyn Livingstone rightly said that there is a specific gender aspect to technology, engineering and information technology. As an ex-IT person, I am always disappointed that women are increasingly giving IT a total body swerve. There is a disinclination

across the board to get involved in technology and engineering. How can that be addressed?

Professor Sizer: In Scotland and across the UK, the demand for engineering courses has been a major problem. The proposals give much more flexibility to the institutions. We have always argued that institutions want to see differentiation between themselves and agree that they should be excellent at what they do. The University of Paisley caters for a totally different market to the market that is catered for by the University of Edinburgh. It is far better to have 20 institutions reading their crystal balls in order to understand their local markets and what the needs are in their area. We can then interrelate that to the employers with whom their students find employment.

I have just seen some research that landed on my desk today that was based on comparative interviews about the employability of graduates in Scotland and England. One of the key conclusions was that the Scottish students felt that their skills were far better developed to meet employers' needs than did the English students. That is because each institution has to respond to its own market. If the funding model gives the institutions greater flexibility, an interface with the LECs and the new skills unit that has been set up in Scottish Enterprise, that should be positive, as the present model constrains people.

If the funding councils give the institutions a detailed funding model, it is inevitable that the academics will say that "That is my share of the cake" and "I want that bit". That creates pressure on principals to distribute funding internally in the way that it comes from the funding council. However, if there is more flexibility, it is up to Professor Stevely of the Robert Gordon University to adapt his course mix and his allocation of students to meet the employment markets that he serves. Those markets will be different to those that are served by the University of Aberdeen.

Rowena Arshad: In the past two years or so we have had a 40 per cent increase in student intake into subjects such computing. However, that does not answer the gender aspect.

The Convener: Two people still want to ask questions. We have to finish by 1 o'clock, so we must be quick. I would like quick replies too.

Mr MacAskill: I support the principles of where we are going, but I can foresee problems such as those touched on by Sir William Stewart and others. Professor Sizer said that the proposed research development grant funding would be about £5 million. What is the existing funding? Paragraph 46 of the SHEFC submission states that the funding for existing 3bs and 3as is £22.5 million. There will be a substantial drop. Is there a

possibility of enhancing research development grant funding so that there is not a calamitous drop? Can the funding be phased over several years. Is that an option? Going from £22.5 million to a pool of £5 million for 3as and 3bs will cause significant problems.

Professor Sizer: If we put more money in, from where do we take it? That is our dilemma. Do we take it from knowledge transfer? Do we take it from strategic investment? We are paying the price for our success and there may be a case for putting another £20 million into the kitty, as Universities Scotland has argued. It would be a small sum of money to deal with the problem.

Professor Bruce: In principle, there is no desire to withdraw funding from 3as and 3bs. The principle is to protect funding for those areas that are graded higher than that. If it were affordable, funding could go to departments at lower grades. The research development foundation grant of £5 million to which Mr MacAskill alluded is one way of redressing the problems that may arise. However, until the outcome of the research assessment exercise and the future budget are known, we do not want to say that that is the only way in which the lower-graded departments will be funded.

Mr MacAskill: If additional funding becomes available, does Professor Bruce regard that as the mechanism to enhance the research development fund?

Professor Bruce: There is a debate to be had about funding for excellence across the board and then a possible prioritisation of funding for lower-graded areas. If we had a budget, we could prioritise it for the lower-rated areas. It is also possible that, with a particular budget profile, we could fund on a formula across the board encompassing 3a and 3b, as we do now.

Professor Sizer: If more funding were available, the minister would give us guidance. It was interesting that John Taylor wanted to put even more money into excellence. There are trade-offs. We have not yet seen the science strategy. It is all part of a jigsaw and one or two pieces are missing at present. The allocation of additional money should be informed by the work of SHEFC, the minister's views and the science strategy of the Scottish Executive.

Mr Davidson: Professor Sizer and I have exchanged quite a bit of correspondence about the review. He mentioned ministerial direction. That led to access funding. Many people whom that is supposed to encourage and help would be heading into vocational degree courses. Most universities still seem to consider that a cut has been imposed on laboratory teaching. Universities also tell me that doing research costs them money. Bearing in mind the fact that many

universities are sliding into deficit, they are having to make some hard choices. Can you allay some of those fears?

Professor Sizer: All I can do is allocate the funds that are made available by the Minister for Enterprise and Lifelong Learning. In response to a question earlier this week, the minister referred to a letter that I had written to her concerning the financial health of Scottish institutions. Currently, no institution has been asked to prepare a financial recovery plan, nor has any institution had to do so since SHEFC was established. I take my accounting officer responsibilities very seriously. Are you asking about laboratory teaching within the six groupings or about the current situation in institutions?

Mr Davidson: I am asking about the changes to the current situation.

Professor Sizer: As you know, the minister made additional funding available to us, and we have just made a substantial increase in the funding to institutions for next year. Part of that was a recognition by the minister that there was a need to provide further funding in universities to address those very concerns. Whether they will fully address those concerns is for the universities to inform us.

Mr Davidson: We shall know better in June, I suspect.

Professor Sizer: I am sure that we shall.

Mr Davidson: On the question of research—

The Convener: I am sorry to stop you, but we have only five minutes left to cover the last three items.

I thank John Sizer and his team. Your evidence is much appreciated, John, and again I apologise for keeping you waiting. I have no doubt that we shall see you again soon, and I look forward to receiving additional information from you.

Professor Sizer: I hope so. As you know, I always enjoy these occasions, even if I do not always get things right.

The Convener: Thank you.

New Economy Seminar

The Convener: The proposal for the new economy seminar arose out of a speech that I made to Lloyds TSB senior managers, who said that it was such a brilliant speech that they wanted to follow up on it. They suggested sponsorship of a seminar once our report has been published. I take it that there is agreement to that proposal.

Miss Goldie: I have a concern about it. Should the committee be tying itself to any member of the financial sector by allowing it to co-host a seminar? It is extremely important that the committee maintains its public neutrality. Are we sending out a message to other financial institutions that they should be trying to get their oar in? At what point should we resist such invitations? If we agree to this proposal, we are opening the door to the committee expressing a willingness to consider invitations from operators in any sector to co-host such events. I must be honest and say that I am slightly uneasy about it.

Elaine Thomson: I hear what Annabel Goldie is saying, but I think that it is quite a good idea nevertheless and one that we should consider seriously. I would certainly support the proposal and I would like us to go ahead and do the seminar. It is a new and different way of engaging with the industrial sectors in Scotland.

Bill Butler (Glasgow Annie'sland) (Lab): I also support the suggestion. I take Annabel Goldie's point seriously, but we would have to receive clearance from the relevant parliamentary authorities in any case, so we might as well test the water. If they say no, then that is it. If they say yes, or yes with conditions, we can go ahead.

Mr MacAskill: I would want more details about the planning. I take cognisance of what Annabel Goldie says. If it is simply a matter of taking some generosity from the private sector to allow something that has public benefit, I can see merit in that. If it was becoming more interlinked, I would take to heart more of her concerns, which she is right to flag up. I would want greater specification of who, what and how.

Miss Goldie: I do not just want to hear from Lloyds TSB, I want to hear from the Bank of Scotland, the Royal Bank of Scotland and any other major players in the new economy. I do not want any of them to feel that it is the Lloyds TSB show and that they should therefore not endorse it. Would it be better to repeat our business-in-the-chamber meeting, but to concentrate this time on sectors such as the financial sector? After all, there are a limited number of banks in Scotland, so we could invite them all. That does not have to be an expensive day at all. We could ask a whole

gamut of other people too. I feel that the proposed seminar could set a slightly undesirable precedent, and might restrict access to the very people that we want to hear from.

Marilyn Livingstone: I must admit that I like the idea of the seminar and of keeping things quite tight, with 30 or 40 people. We can learn more and get more views if it is tight. However, I take on board what Annabel Goldie says. I had the same worries. Could we compromise by holding the seminar on our own and inviting Lloyds TSB? We could go on to do something else depending on how that went, but I can see how the proposed seminar could be perceived. However, the idea is a sound one and, like Elaine Thomson, I like it.

Miss Goldie: Yes, I like the idea.

The Convener: Let us do as Marilyn Livingstone suggests, and pursue the idea of a seminar before the parliamentary debate but after the recess. That is the logical time to hold it. We could hold it in the chamber on a Monday or Friday, providing that we get approval. We shall write to Lloyds TSB saying that we like the idea of the seminar but feel that we should not be tied to one company.

Miss Goldie: Is the intention that we should host the seminar with a wide-ranging representation?

The Convener: Yes.

Elaine Thomson: I have a concern about holding it in the chamber. I am not saying that business in the chamber was not hugely successful, because it was. It was also useful for the delegates to sit in the chamber, simply because of where it is, but it is a very formal setting and that might put a lot of people off. If we want a seminar that allows as much interaction between them and us as possible, we should look for somewhere else.

Miss Goldie: I agree.

The Convener: Do members agree to the proposal that there should be a seminar, hosted by the committee, after the recess but before the parliamentary debate, and that it should be held in close proximity to the Parliament, somewhere that is not too expensive and that we are likely to get approval for—

Marilyn Livingstone: And where we can be reasonably informal.

The Convener: Yes. We can agree the agenda through the group of five nearer the time. Is that agreed?

Members *indicated agreement.*

The Convener: We shall write to Lloyds TSB accordingly.

13:01

Meeting continued in private until 13:05.

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